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# JOURNAL

of the Canadian Dental Association
de l'Association Dentaire Canadienne

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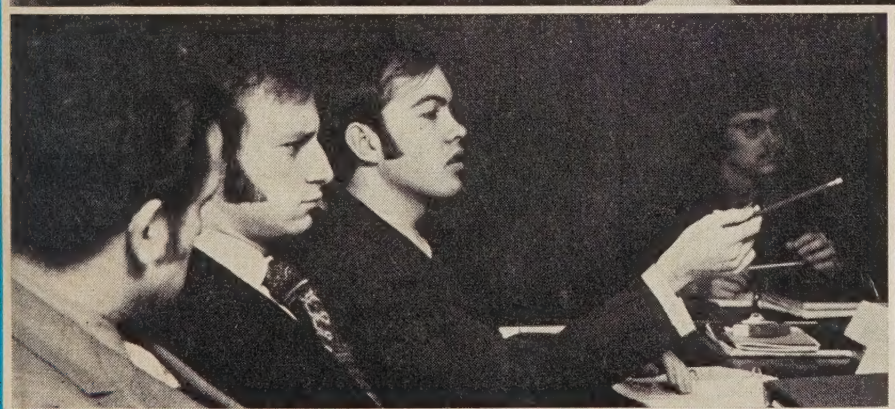

DENTAL STUDENTS HOLD
SECOND NATIONAL CONFERENCE
OCTOBER 21-24, 1970

LA DEUXIEME CONFERENCE
NATIONALE DES ETUDIANTS
DENTAIRES CANADIENS
21-24 OCTOBRE 1970

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# What difference does time make to a sailor?

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# The Quebec specialists' dilemma

Quebec's embattled medical specialists have fallen on difficult days. First, despite a three week withdrawal of their services, they failed to obtain the amendments they sought to the medicare legislation which was passed last summer. Then, on October 15, the government passed a very restrictive piece of legislation which required physicians to return to their normal practice immediately and even prohibited them from speaking against the order.

Under ordinary circumstances one would have anticipated general revulsion against any legislation whereby one segment of society is conscripted, muzzled and threatened with jail terms. But these are not ordinary times in Quebec. And it is the special circumstances that prevailed there last October—not Bill 41—which induced the specialists to return to their practices immediately.

Originally, there were two aspects of medicare Quebec style which distressed the specialists: one, that patients attending a physician who billed them directly would receive no benefits from their insurance; the other, that the Quebec Health Insurance Board would decide whether services rendered to patients were medically necessary.

The specialists contended this denied patients a free choice of doctor. And they objected strenuously to giving the Health Insurance Board the right to make decisions in matters which properly came under the purview of the College of Physicians and Surgeons.

The government's response, consisting of three new bills, came on October 15. It was, to say the very least, a curious package.

Bill 40 set November 1 as the official starting date for the medical insurance program—but without any signed agreements from the profession.

Bill 39 amended the original act so as to protect the position of the College of Physicians and Surgeons. It also provided for a new opting out formula which allowed the physician to bill his patient directly and the patient to receive planned benefits, but prohibited the physician from charging more than the government's actual payment for the service involved.

And then there was Bill 41—truly a sledgehammer. It required every specialist who had a Quebec licence during the preceding three months to return to work or face fines of $200 to $500 per day and the possibility of a one month jail sentence. The act held everyone absent to be guilty lest he could prove otherwise. It precluded any adverse comment from the medical profession of Quebec by stipulating fines of from $5,000 to $50,000 per day and jail terms of up to one year for any syndicate or association officer who commented in a fashion that might deter physicians from returning to work. And the act provided authority for a one-man commission to enforce its provisions, thereby establishing a virtual dictatorship over Quebec specialists until July 1, 1972.

What happens next is anyone's guess. But regardless of the eventual outcome, no one can benefit from these tactics. Compelling the physicians to take as final payment whatever the government decides the economy of the province can afford does not make the plan any more palatable than before. And coercive legislation which forces the specialists back to normal practice of their profession and classifies all who refuse as criminals does not inspire confidence in the government.

It has been suggested that, when the effect of the War Measures Act has been removed, the Canadian Bill of Rights may be used to question the constitutional right of the Quebec government to enforce Bill 41. But it would be even more desirable if the government were to rescind the bill and engage in meaningful dialogue with the specialists who, by returning to work, have given up their only position of negotiating strength.

*Just prior to press time, Quebec Health Minister Claude Castonguay announced the repeal of Bill 41 and the conclusion of a collective agreement between the medical specialists and the provincial government. (Ed.)*

# $55 pour le Journal? (fin)

Avec des ressources financières minimes, l'Association Dentaire Canadienne doit faire des efforts surhumains afin de fournir les services que la profession demande d'elle et maintenir son existence.

Pour faire suite à la description des activités de l'ADC dans les domaines de l'enseignement, des assurances, du régime d'épargne-retraite, des impôts et de la taxe de vente, des spécialités et de la recherche (Journal du mois de décembre), voyons ce que l'ADC parvient encore à accomplir avec la contribution du dentiste.

Avec l'aide de la firme Carleton Cowan, l'Association vient de mettre en marche un nouveau programme de relations publiques. Des articles paraissent dans quelques 100 journaux hebdomadaires qui sont lus par plus d'un million de Canadiens. L'ADC procure également des communiqués à la presse, à la radio et à la télévision dans le but de rejoindre, non seulement le public, mais éventuellement les ministères des gouvernements et les législateurs. L'ADC est aussi à développer un bureau de conférenciers, un dépliant pour le consommateur intitulé *Le dentiste et vous,* un programme de films et des discussions sur des sujets dentaires pour la télévision par cable. Un nouveau film éducatif, à l'intention des adolescents, vient juste d'être terminé sous l'égide du Conseil de l'hygiène dentaire et avec la participation des étudiants dentaires à l'Université de Toronto.

Le Journal s'est donné une nouvelle robe depuis un an. Nous essayons de vous faire parvenir les nouvelles plus rapidement et d'établir un dialogue avec la profession. A vous d'en profiter.

Tous les dépliants publiés par l'ADC sont en train d'être modernisés avec de nouvelles photographies. La bibliothèque tient 5,211 volumes à votre disposition. Vous pouvez emprunter n'importe laquelle des 343 revues dentaires auxquelles l'Association souscrit et tout cela ne vous coûtera pas un sou. L'ADC paie les frais de poste! Ecrivez à la bibliothécaire, Mlle Colette Gagnon. Elle se fera un plaisir de vous servir. Encore sur le sujet des livres, l'ancien secrétaire de l'ADC, le Dr Don Gullett, vient de compléter un livre sur l'histoire de l'art dentaire du Canada qui sera publié prochainement.

L'ADC n'oublie pas les étudiants. Ceux-ci peuvent devenir membres de l'association nationale, envoient des délégués à la Conférence des étudiants dentaires et auront maintenant un représentant au Bureau des Gouverneurs.

L'ADC participe activement à un programme de recrutement pour la profession dentaire en apportant son concours aux membres corporatifs provinciaux.

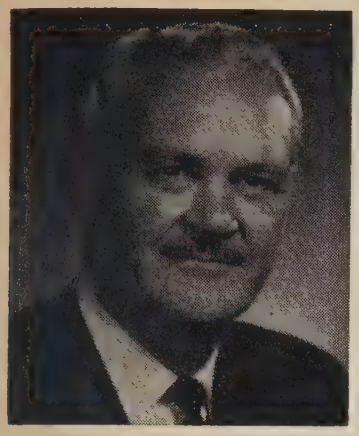
L'Association Dentaire Canadienne parle au gouvernement fédéral au nom de tous les dentistes canadiens. Récemment, à la demande des provinces, l'ADC a demandé au ministre national de la Santé d'abroger les restrictions hospitalières en ce qui concerne les soins dentaires chirurgicaux.

Nous n'avons fait qu'une esquisse des travaux qui occupent l'ADC à l'heure actuelle. Mais l'ADC veut et peut faire mieux.

$55 pour le Journal? Allons donc! Cette somme représente le meilleur placement qu'un dentiste peut faire pour défendre et améliorer la profession qui le fait vivre.

*L'usage du tabac et l'obésité* — Au service de documentation scientifique (466-1970), on apprend que les fumeurs qui arrêtent de fumer et qui se mettent à grossir ne prennent pas du poids simplement parce qu'ils grignotent en guise de compensation, mais parce que leur organisme s'est habitué à un régime alimentaire trop riche. Des chercheurs américains ont constaté que les fumeurs absorbaient en moyenne environ 350 calories de plus que les non-fumeurs, sans que ce supplément retentisse sur leur poids. Mais lorsqu'ils abandonnent le tabac, ces calories supplémentaires les font grossir. — L'information médicale et paramédicale.

# EXECUTIVE DIRECTOR'S PAGE



**W. G. McIntosh, DDS**

As we are about mid-way to the 1971 meeting of the Board of Governors, a progress report on the Board's Winnipeg directives is in order.

**Medical care act**

Only three written statements from the provincial associations have been received on the Board's request for comments on controversial clauses contained in the federal medical care act.

These are the "in-hospital" restrictions on dental surgical services that were discussed in Winnipeg. The Board asked corporate members who think these clauses are unfair to patients and dentists to notify me.

We expected most, if not all, corporate members to be against these restrictions. I will use the statements as a provincial consensus when I appear again before the Minister of National Health and Welfare to request deletion of the clauses.

**Internships and residencies**

All Canadian hospitals with dental internships and residency programs were notified of the CDA's new accreditation policy, but there seems to be some misinterpretation.

The policy was recommended by the Council on Education and approved by the Board. It limits the council's appraisals to those programs in which the dental service has been approved by the Hospital Services Council, forms part of a formal university program and is in an area of specialization recognized by the CDA.

Several hospitals feared they would automatically lose accreditation because their programs did not qualify under the three requirements. This is not necessarily so.

The Executive Council has asked the Hospital Services Council to propose ways for these hospitals to continue to receive CDA assistance through some other accreditation program.

These proposals will be discussed at the 1971 Board meeting, but meanwhile, no accredited programs will lose their status.

**Postgraduate survey**

A survey of Canadian postgraduate programs is being delayed due to a lack in funds. The CDA is looking for outside sources and has approached the Canadian Fund For Dental Education.

A detailed breakdown of estimated costs has been given the CFDE with the request for money. Because this project is closely related to dental teacher and researcher training, it is hoped the Fund will approve the request.

**Code of Ethics**

Bulk lots of folders containing the new CDA *Code of Ethics* have been sent to the secretaries of the provincial associations for distribution to members.

The new Code had been prepared by the Council on Ethics and approved by the Board at Winnipeg. The council agreed to submit explanatory notes and examples that would be considered for incorporation into the new Code. The Board had requested the Communications Council to come up with an inexpensive format and distribution method for the Code. The Communications Council decided on a folder that would fit into a three-ring loose-leaf binder and asked the provincial secretaries to include this folder with a regular mailing to their members at a convenient time.

**Transactions**

Copies of the English edition of the 1970 *Transactions* have been distributed to those members requesting it. A questionnaire was sent out earlier to all members asking whether they wanted a copy and to state their language preference. The French edition is expected off the press shortly.

As a forced economic measure, a limited number of *Transactions* was printed and available only on request.

**By-laws**

Corporate members, the Board and the Council on Constitution and By-laws have been sent printed copies of further proposals for amending CDA by-laws and the terms of reference of the Council on Constitution and By-laws.

Doctor George Dundass, president of the Montreal Dental Club, had made a detailed submission of the proposals to the Board at Winnipeg. Both the Executive and Constitution councils have given preliminary consideration to Doctor Dundass' proposals. Further study seems inevitable for the 1971 Board meeting in Ottawa.

I intend to make another progress report on the Board's 1970 directives in the next issue.

# Letters/Courrier

sure with which the US Armed Services plan to treat nearly five million service personnel and their dependants.

*The Hon. John C. Munro, PC, MP*
*Minister of National Health and Welfare*
*Ottawa*

### Care for Indians and Eskimos

In response to Doctor Sumner's letter in the November issue I am pleased to provide detailed information concerning the current policy of my department in the matter of dental care programs for the Indian and Eskimo people.

The policy of my department with regard to dental health is based on the principle that the most effective way to attain improved dental health conditions among the Indian and Eskimo peoples lies in the prevention and early treatment of dental and oral diseases among their children.

The objective of the Indian and Eskimo health program is to provide or arrange for health services for eligible Indians and Eskimos in order to assist them in achieving a standard of health comparable to that of other provincial residents. Wherever possible, it is our desire to arrange for the provision of these services in conjunction with existing programs. Indians and Eskimos are, in most provinces, receiving the same benefits under hospital and medicare plans as all other citizens. Most provincial plans include some dental benefits.

The implementation of specific dental programs is dependent on the availability of adequate professional personnel. In an effort to overcome the present shortage of health manpower, my department has developed affiliations with universities and professional associations. One example of a comprehensive arrangement that has been made is the agreement between my Medical Services Branch and the University of Toronto to provide resources, both medical and dental, in the Sioux Lookout area of northern Ontario. Dental consultants from the university have provided valuable assistance and advice in their effort to meet and solve the dental problems in this particular area. Programs to train increasing numbers of native community and family health workers have been expanded, and these people are playing an important role in the field of health education. It is hoped that emphasis on this phase of the dental health program will motivate the Indian and Eskimo children to adopt better oral hygiene and dietary habits.

During the past year the supply of field dental equipment has been increased, in anticipation of a more concentrated treatment program, particularly in the more isolated mid-north areas. Medical Services has also adopted a group treatment, self-administered, stannous fluoride prophylactic paste for the partial control of dental caries. This is the same preventive mea-

### Hazards of radiation therapy

Doctor Najjar's article about the effects of radiation therapy in dental practice (November issue) is interesting and informative. But he did not emphasize the difference between diagnostic and therapeutic radiation doses. The latter are many hundred, and sometimes several thousand, times greater than those employed in diagnostic radiology. In fact, the possibility of damage from diagnostic radiology is negligible provided an operator takes all necessary precautions. But therapeutic doses are another matter. Irradiation of this magnitude can induce changes in bone, developing teeth and standing teeth. That is why, as Doctor Najjar explains, dental personnel should be aware of the consequences of radiation therapy in the region of the mandible and maxilla.

Trauma, such as the extraction of a tooth, can precipitate osteomyelitis. The effect, though not fully understood, may be mediated through osteoblasts and osteoclasts, with subsequent impairment of normal bone metabolism. Endarteritis may be an additional factor.

The best precaution against osteomyelitis, as Doctor Najjar points out, is to remove the teeth before commencing radiation therapy. But sometimes treatment must proceed while teeth are still present. They should then be preserved so that the extractions can be deferred for as long as possible. As a general rule, the longer the delay after therapy, the greater the degree of bone recovery. When extractions can no longer be put off, they should be performed surgically, with the bone being saucerized so that all areas will receive a good blood supply.

Irradiation can also produce a variety of changes in developing teeth,[1] depending upon the size of the dose and the stage of tooth development at the time of exposure. The effects may range from complete failure of the development of a tooth to mild hypoplasia of the enamel. Between these two extremes almost any degree of malformation may be encountered.

Finally, standing teeth are also subject to shallow erosions in the cervical region of all surfaces. Such erosions can cause separation of the crown from the root.

*H. G. Poyton, FDS (Lond), FRCD (C), HDD (Edin)*
*Professor of Radiology*
*Faculty of Dentistry*
*University of Toronto*

1 Poyton, H. G. Effects of radiation on teeth. Oral Surg 26:639, 1968.

### Importance of proper diagnosis

It is refreshing to note Doctor Perlman's stress on observing the entire patient before counting cavities and vacant spaces (November Journal).

Dentistry will never attain professional status until we learn that a hemiplegic patient has a problem handling removable dentures, and that a woman's persistent gingival bleeding may herald a blood dyscrasia. The dentist who performs a complete mouth rehabilitation but does not recognize Cushing's syndrome should know that his prostheses are doomed because of bone loss induced by hypercorticism.

A dentist does not need a formal medical education, but he must be sufficiently conversant with oral-systemic correlations so as to contribute effectively to his patients' well-being. He should recognize obvious signs on exposed parts of the body that are related to systemic disorders, and he must know the oral manifestations of systemic diseases.

A glance can often tell that an enlarged head may be a clue to Paget's disease, a cyanotic complexion may indicate hypertension, a bloodshot eye may reflect vitamin B complex deficiency, and club fingers may signify cardiac or pulmonary disorder.

Additional diagnostic aids will prevent the dentist from jumping to wrong conclusions, but he should also recommend medical consultation for a final diagnosis and treatment of basic systemic disease.

Readers who concur with Doctor Perlman's contribution but fear that their patients may not pay for the time spent in making diagnostic observations should remember that diagnosis is a better and more lasting practice builder than cosmetic dentistry. If dentists will teach the public that diagnosis is an essential phase of clinical practice, dentistry will be universally recognized as a health profession rather than just a mechanical art.

*Arthur Elfenbaum, DDS*
*431 Oakdale Ave*
*Chicago, Ill 60657*
*USA*

### Bone lesions in periodontitis

Doctor Lesser's article in the November issue presents an interesting hypothesis but contains certain statements that are difficult to accept.

Early in the article the author mentions that bone is a living tissue and continuously changing. In normal healthy individuals calcification and decalcification occur constantly and are in balance one with the other. Otherwise, whatever the reason, bone calcium may be gradually depleted, with cumulative results if the deficiency persists.

This process, as Turek's *Orthopaedics* and Best's *Physiology* point out, apparently affects the cortex of the long

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bones first. But Doctor Lesser assumes that intermittent bone loss is cumulative and that it first attacks the lamina dura of the alveolar ridge. In this he differs with Turek and Best and he does not cite any references for his statements.

Doctor Lesser also postulates that the high incidence of periodontal disease in India may be due to a low intake of calcium. He offers no proof, nor does he make any reference to the extremely high incidence of calculus among these people. It could be suggested that the unusually heavy deposits of calculus lead to the high rate of periodontal disease.

Finally, Doctor Lesser mentions that the average phosphorus intake is 2.8 times that of calcium. Turek and Best state that an increase in phosphorus intake is accompanied by increased urinary excretion of phosphorus. If this were untrue and if the average American ingested and somehow utilized too much phosphorus, one could only assume that he would soon be dead.

*J. D. Stewart, DDS, FRCD (C)*
*311 Rubidge St*
*Peterborough, Ont*

Doctor Stewart's letter is interesting. It raises some important points that go right to the heart of my thesis. Let me answer them in order.

Textbooks, by their very nature, are often not up to date. The works of Krooks, Henrikson et al of Cornell University and Bélanger of the University of Ottawa Faculty of Medicine, all published since 1963, have changed some of my ideas about bone metabolism. Henrikson's article, in particular, is a classic.

I feel that once we have the initial loss of bone, we set the stage for an inflammatory reaction. One of the products of inflammation is an exudate. This exudate very likely plays an important role in calculus formation. I contend that calculus formation is a result, and not a cause, of the initial lesion in periodontitis.

As for Doctor Stewart's third point, it provides evidence that my thesis is correct. One of the first indications of the secretion of parathyroid hormone is its action on the kidney, leading to increased urinary excretion of phosphorus. With a high phosphorus diet, we get an initial hyperphosphataemia. This in turn leads to hypocalcaemia, which stimulates the parathyroid gland in the body's attempt to restore isoolacaemia. As serum phosphorus goes down, serum calcium goes up until normal levels are attained.

I commend Doctor Stewart for questioning what I have written. I also urge him to re-examine the references which I cited and then make up his own mind.

*G. V. Lesser, DDS*
*142 Niagara Falls Blvd*
*Buffalo, NY 14214*

# Dialogue

*In an address to the Fall Clinic of the Montreal Dental Club last October, Doctor Harold Hillenbrand, former executive director of the American Dental Association, called for fuller exploitation of all aspects of preventive dentistry and greater use of dental auxiliaries with expanded duties as an answer to rising public pressure for more dental care at lower cost. This month, Doctor W. V. Grenkow, a Winnipeg general practitioner, provides Canadian comments on this proposition.*

## Better utilization of auxiliaries in dentistry

Some years ago someone in dentistry pressed the alarm button. There were warnings about sharply rising treatment demands and exhortations to increase dental productivity. Public concern was evident over the rising cost of dental care. We, as a profession, had become complacent and were unprepared. The alert was necessary. The need was there.

Many changes have occurred since those days, and many plans for improvement are coming to fruition. But we still hear the persistent clamour of alarm bells that ring out warnings of "crisis" and "doom."

We are warned that the population is increasing faster than we can train dentists. We are told that this ratio is critical. We are also cautioned that any further deterioration will provoke a public outcry over the scarcity of dental services,[1] even though responsible studies[2] question whether such inadequacies do in fact exist.

We are urged to do something about the rising cost of dental care before governments step in and force our hand. But are the costs[3] really all that disproportionate? And do those who sound the alarm make any allowance for the considerably higher standard of dentistry demanded by the public?

Finally, we have the recurrent suggestion that the public would be better served if government were to play a greater role in the organization of dental practice. Is this really true?

Let's take a look at the actual facts.

We are fortunate that some highly motivated dentists are bringing about constructive changes in dental education and practice. Expressing concern in official quarters, they have enlisted government aid in expanding the facilities for dental education and re-

search. As a result, more dentists are being trained every year. Productivity has benefited from this increase as well as from improved technology.

Thanks to fluorides, too, we have made enormous strides in caries prevention and control. Despite some important gaps, we are slowly winning the battle for fluoridation. In fact, I cannot understand why any community should still resist adopting such an obviously necessary health measure. This may have to be changed with government pressure.

I am also puzzled why the dental profession has not tried harder to provide topical fluoride therapy for all young people in Canada. This offers a unique opportunity for greatly expanded use of auxiliaries, and one that would help ameliorate past neglect. Moreover, helping to control the incidence of caries on such a broad scale not only reduces treatment costs for the individual and the community but also diminishes the demand placed on dentists.

The dental hygienist was originally conceived as an auxiliary who would supplement the dentist by delivering the preventive phase of dental care. It was anticipated that her services would increase the dentist's productivity and provide economies for the patient. But unfortunately her functions were drastically curtailed by legislation and serial listing of the duties she could perform.

Her limited capacity made her less than an unqualified success. Trained in insufficient numbers, overtrained for the meagre role she was permitted to play, the dental hygienist was underutilized by the profession. Predicted economies were never realized.

Better utilization dictates an expansion of the hygienist's role. She should be more akin to the registered nurse, with commensurate clinical responsibility and supervisory capacity. As a corollary, her employing dentist should be given greater responsibility in deciding what she can or cannot do.

We will also need someone else to fill the role previously discharged by the dental hygienist. This could be the dental assistant. With appropriate formal training she could absorb the hygienist's present duties exclusive of subgingival scaling.

Admittedly, it would be necessary to amend provincial dental acts to permit dental assistants to work intra-orally under effective and responsible supervision. Provincial dental boards are aware of this and some have already moved to provide enabling legislation. This should become a national proposition.

Such an auxiliary would be of tremendous value in reducing costs. Because of her versatility, she could be employed full-time in urban or rural solo practices. And she would readily adapt to any type of large group practice, public health unit or community dental health centre. Moreover, she could be trained in considerable numbers at comprehensive high schools or community colleges—facilities that are readily available in small as well as large centres.

Such a proposal is being studied by the Manitoba Dental Association. It calls for a four-semester course to be completed in two years. The first semester provides a basic dental assistant's training. On completion, the student could either work as a trained dental assistant or continue into the second semester, learning to take radiographs, supragingival scaling, prophylaxis and the application of topical fluorides. After the second semester she would be certified as a clinical dental assistant and would then have to work for at least one or two years gaining practical experience. The benefits are realized in the next two levels of training which are devoted to the expanded duties of a dental hygienist. This includes making judgement decisions, educational and supervisory capacities and, possibly, the placement of restorations. This portion of the course also provides a promotional outlet for many presently certified dental assistants.

The urgent and immediate need for massive delivery of preventive services right across Canada may also require the provision of additional shorter courses for existing dental assistants.

In sum, these measures would be preferable to any system which permits dentists to train their own auxiliaries.

I would like to make a further suggestion which could have far-reaching consequences. By mobilizing every dentist and dental student in the nation we could in one concerted sweep examine, x-ray, chart and provide a prophylaxis and topical application of fluoride to every child in Canada between the ages of five and 12.

A plan of this magnitude calls for men with imagination and drive, men of vision who could organize such an endeavour. We would require the support of governments. We would need access to all possible fixed and portable facilities for mass treatment. It would be necessary to enlist every dentist regardless of whether he is in private, general or specialty practice, public health or engaged in teaching. We would need the help of all third year students who have finished their year, all fourth year students and all graduate students in training. We would also depend on final year dental hygiene students, all dental hygienists and every available dental assistant. Additionally, we could enlist competent lay persons to assist with cleaning and sterilizing instruments.

Such a project should be accompanied by an educational program for public school teachers aimed at introducing the mass brush-in technique with 8 per cent stannous fluoride. Properly organized public health units could carry this phase of the program into isolated communities.

If such a project were repeated annually for the next six years, we could have a generation of teenagers with up to 80 per cent less dental caries than at present. The effect, in terms of the reduced need for treatment, could be staggering.

The point I wish to make is this: before we train large numbers of auxiliaries to prepare cavities and place restorations, let us focus all our energy and resources on prevention—where it will do the most good.

*W. V. Grenkow, DDS*
*165 Osborne St*
*Winnipeg 13, Man*

1 More auxiliaries and prevention would raise productivity, cut costs. (News item) J Canad Dent Ass 36:437, 1970.

2 House, R. K. Dentistry in Ontario. A study for the Committee on the Healing Arts. Toronto, Queen's Printer for Ontario, 1970.

3 Dental care prices, expenditures rise. (News item) Canadian Dental Association, Governors Letter 15:40, November 5, 1970.

Representatives from dental student organizations at nine Canadian dental schools met at CDA Headquarters in Toronto and at the University of Western Ontario, London, October 21-24, for the second national conference of Canadian dental students. Pictured above (left to right) are: Gary Cooper, University of Western Ontario; Stanley Reich, McGill University; Dorsan Lambert, University of British Columbia; Angus Reid, Winnipeg; Peter Christie, Dalhousie University; and Pierre Larose, Université de Montréal.

# Students probe

## licensure
## education
## association benefits

Three recommendations by the recent Canadian Dental Students' Conference are expected to jolt some officials in the profession.

They concern the National Dental Examining Board, a weakness in student-teacher relationship and a need to learn more about using auxiliary staff.

These highlighted the 11 recommendations of the second annual conference, held in Toronto, last October 21-24. The conference, which was sponsored by the Canadian Fund for Dental Education through a special grant from Colgate-Palmolive Ltd, also elected a student representative to the Canadian Dental Association's Board of Governors. He is Gary Cooper, of the University of Western Ontario, who will also serve as chairman of the next conference. His school played host to part of this year's meeting.

### National Dental Examining Board

The recommendation concerning the National Dental Examining Board was made in four parts. The first part urges that the examining board be asked to justify the levy of $200 for its certificate when issued without examination.

Reason for the inquiry is based on the fact that the board's examinations are no longer held for current graduates of accredited Canadian dental schools.

The president of the University of Western Ontario's dental students' organization said the fee was raised last year from $125 to cover the rising cost of administering and marking the examinations. He and the delegates wanted to know why the $200 fee is to be continued as new graduates won't be writing the examinations this year.

The delegates attending from the nine other dental schools were Dorsan Lambert, University of British Columbia; Joey H. Brown, University of Alberta; Dennis Lanigan, University of Saskatchewan; Barry Kendell, University of Manitoba; Gerry Solomon, University of Toronto; Pierre Larose, University of Montreal; Stanley Reich, McGill University; Peter Christie, Dalhousie University, and Western Ontario's Gary Cooper.

The delegates also disagreed with the requirement that the NDEB certificate be purchased by a March 30 deadline of the final undergraduate year.

It was agreed that the deadline doesn't give graduates enough time to decide where they will practise. They must write full NDEB examinations if they later decide to move outside the province. Many may want to continue postgraduate studies, internships or research, said the delegates.

Conference chairman Randy C. Whyte was instructed to ask the board to consider an extension of the deadline to all candidates and, also, to ask the board to clarify its licensing policy with special regard to provincial regulations and examination.

The fourth part of the recommendation concerning the NDEB urged that continuing education be an integral part of licensing renewal and that a system of re-evaluation of dental practitioners be considered.

There is no system of re-evaluation of practitioners, and the professional competence of graduates of Canadian dental schools is presumably accepted as equal at graduation, said the delegates. So why should anyone graduating now be asked to prove his capability and proficiency in future as a prerequisite to moving to another province?

### Schools criticized

The second major recommendation of the conference pointed out a "general weakness" in most Canadian dental schools. There appear to be prolonged delays in returning marks for clinical performance to students.

"To be of value as a teaching method, the marks should be given to the student immediately on completion of an assignment, as they are in Alberta and now at the University of Montreal," reported Whyte. The chairman added that reasons should be given for the mark and suggestions for improvement. In fact, most of the delegates preferred a pass-fail or a good-satisfactory-unsatisfactory system of grading as opposed to numerical marking.

In the discussion on staff-student liaison, led by Doctor Gordon Nikiforuk, dean of Toronto's Faculty of Dentistry, it was suggested that some faculty members are difficult to approach. They seem to consider teaching secondary to their research.

But some students are partly responsible for the dilemma, because they don't try to communicate on a person-to-person basis with the staff. A formal liaison structure, existing in most schools, was not always effective, the delegates agreed.

They also felt that too much teaching staff effort is spent on monitoring student performance, so reducing their teaching potential. Many instructors had little formal training in teaching methods and lacked standard policies, they added.

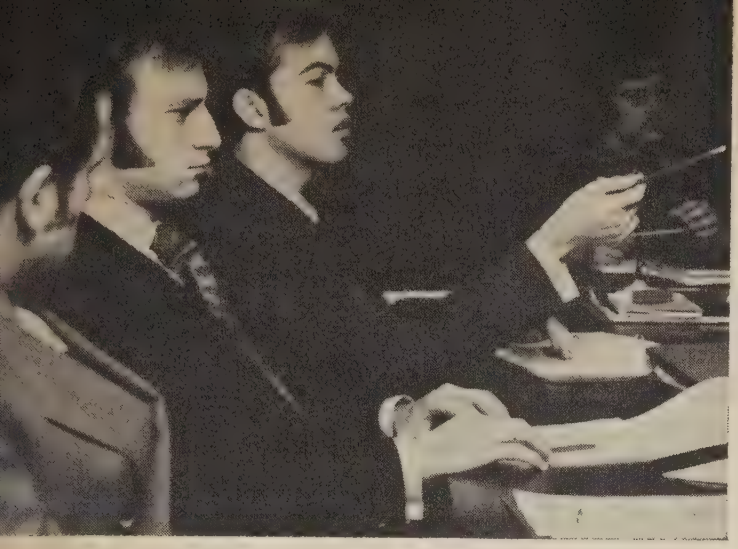
Dean Nikiforuk suggested as a remedy that each departmental committee in a school include a student representative.

### Use of auxiliaries

The third major recommendation was that dental schools should expand the education of dental students in working as a team with dental auxiliaries, especially hygienists.

Also urged was the encouragement of exchange

Randy Whyte, Toronto (seated left), conference chairman, is seen with the nine other delegates: Stanley Reich, McGill University; Dennis Lanigan, University of Saskatchewan; and (standing) Barry Kendell, University of Manitoba; Gerry Solomon, University of Toronto; Peter Christie, Dalhousie University; Joey Brown, University of Alberta; Pierre Larose, Université de Montréal; Dorsan Lambert, University of British Columbia; and Gary Cooper, University of Western Ontario.



Dennis Lanigan, University of Saskatchewan, gets his point across to fellow delegates from the other eight dental schools.

visits and other communication among Canadian dental students.

In another recommendation by the conference, the students asked that the CDA sponsor student table clinics at its national convention and that the Association search out special grants to allow each dental school to present table clinics.

On a specific request from last year's conference, the CDA has set aside $200 to sponsor such clinics at the Ottawa convention next September.

The delegates agreed that school clinics generally do not provide students with sufficient exposure to the people and situations common in private practice and hospitals. The practice of screening patients for teaching suitability and material exposes students to a biased section of patients, reports Whyte.

Dean Nikiforuk said that internships may become a major part of clinical training. They may well be structured along the lines of general medicine and involve rotations through hospitals and community clinics.

The undergraduate program in some schools was found lacking in basic hospital experience and many internship programs don't allow individualization of training, said the delegates.

It was agreed that use of students as summer assistants boosts research activity as well as student-faculty rapport and helping the student upgrade his standards.

**CDA benefits**

The students expressed much interest in CDA membership benefits.

They urged that students be included in other forms of group insurance besides the available life policies. Doctor D. C. Way, chairman of CDA's Council on Insurance and Investments will discuss this possibility with his council. The delegates agreed that they would act as distributors of the life insurance information brochures at their schools.

CDA membership in each of the schools was about one-third of the student body, but is expected to reach some 50 per cent during this year.

The students decided that the Journal is the main motivation factor in joining the CDA. Although the renewal of memberships was almost total, it was agreed that association benefits need to be better promoted.

The conference recommended that each first year student receive a complimentary issue of the Journal at the beginning of the school year. The copies, along with membership information brochures, would be distributed by the CDA representative in each school.

Some delegates said they liked the idea of conjoint student membership in provincial organizations and the CDA.

In selecting students to represent dental schools at the conferences, the delegates recommended that they be elected by the entire student body and that representatives be student members of the CDA. Also, when only one student from each school is invited, he should be in his third year of undergraduate studies.

They decided that the non-voting student representative on the CDA's Board of Governors would be selected from and by the conference delegates for a one year term, beginning with this year's conference.

Also, they suggested that the chairman of the conference be the student member on CDA's Student Membership Committee. The chairman would be chosen from and by the delegates to the previous year's conference.

The delegates killed the idea of setting up a formal constitutionalized structure. They felt it too expensive and unnecessary at this time.

In a general session on new business, the delegates questioned the validity of organizations based on religious differences and applauded the merging of one school's dental fraternities. They felt that this broke down one of the oldest barriers to human understanding—an objective well worth the risk of alienating national and international fraternal ties.

**Projects for the public**

The public spirit of the dental schools was illustrated in the descriptions of the various community projects being undertaken.

Alberta has a fully equipped dental coach in which two students, a dental hygienist and a dental laboratory technician, spend two weeks travelling in the remote northern part of the province.

Montreal has a summer clinic for the underprivileged at the school. Participants are paid $800 for the period by the Quebec government.

Dalhousie has a similar government-sponsored project which employs four senior (fourth year) and five junior (third year) students treating children in isolated underserviced communities.

As part of their curriculum, Manitoba students spend six weeks with no pay in a clinic at Churchill to treat Eskimos. They also have a volunteer program over the Christmas holidays for welfare children.

The University of British Columbia sets aside one afternoon a week to treat the needy.

Toronto's student health organization serves an underprivileged area in the city core. The small clinic is staffed by volunteer students and staff each night after school. About three-quarters of the fourth year students are involved one night a month.

Western Ontario and Saskatchewan are setting up similar projects.

## The Association

### CDA moves to aid Quebec dentists

The Canadian Dental Association has offered to help Quebec's dentists in their current negotiations with the provincial government over medicare.

At its November 24-26 meeting, the CDA Executive Council reviewed the problems attending the introduction of Quebec's medical care insurance plan. Council members expressed particular concern over the implications of Bill 41 which would have imposed severe restrictions on the practice privileges and civil liberties of Quebec's medical specialists. Premier Robert Bourassa's administration rescinded the bill last month.

In a subsequent letter to Doctor M. B. Archambault, president of the College of Dental Surgeons of the Province of Quebec, CDA President W. J. Spence expressed pleasure at the repeal of Bill 41 and the resumption of negotiations between the government and the health professions, including dentistry.

But Doctor Spence also stressed the Executive Council's deep concern over Bill 41's implications for dentistry in Quebec and elsewhere in Canada. He offered the CDA's assistance to Quebec dentists in their efforts to uphold the principles of dental practice that the profession believes are in the best interest of the public and the profession. Doctor Spence continued:

"As you know, the Canadian Dental Association is very conscious of its jurisdictional limitations in respect of provincial legislation. It does, however, feel justified in espousing certain principles of practice that have from time to time been approved by the Board of Governors. If public statements in this regard or other related action would be of assistance now or at any other time to the dentists of Quebec, the CDA would be pleased to do its best to oblige.

"Will you therefore consider this letter as further evidence of the CDA's sincere concern for and interest in the highest quality of dental health care for Canadians, provided in an environment that recognizes the civil rights and aspirations of members of the dental profession as well as those of the other members of our society, and our offer to do everything possible to achieve these goals."

### President Spence reiterates call for voluntary conjoint membership

CDA President W. J. Spence has again urged individual dentists and their local, provincial and national bodies to study setting up a voluntary fee structure to ensure that both the provincial and national organizations receive sufficient funds to fulfil existing functions and expand into other responsibilities demanded by members and society.

He issued the call during a luncheon address to the Toronto Academy of Dentistry, November 26.

Although the professions have been free to govern their own members as long as the public interest seemed protected, that "public protection" is now being questioned by governments, special commissions, the mass media and the public, the CDA president said.

"They say that dues for professional associations should not be a part of licence fees collected by a licensing authority whose prime objective is protection of the public interest. They call, instead, for the severance of licensing bodies from professional associations –with membership in the former remaining mandatory while associations would become completely voluntary on an individual basis," Doctor Spence said.

"A friendly divorce between the governing (licensing) bodies and the associations doesn't really seem to be a contentious issue," he continued. "It is quite likely that dentistry will make this change without further prompting from government." In fact, noted the CDA president, dentists in one province are already leaning in this direction and are examining the possibility of separating licence fees from association dues. "It seems to me only a matter of time before this enlightened profession makes this change across Canada–long before any law forces them to," he added.

But Doctor Spence warned that separate membership in a provincial and national association could disrupt organized dentistry. The CDA had therefore approved individual voluntary conjoint type memberships. This includes local societies, the provincial and the national associations. Each would be a component of the other. The national body had also invited corporate members to approve this principle and asked its Council on Constitution and By-laws to draft a by-law to accommodate both the existing and conjoint type of membership. This will be voted on at the CDA national convention in September.

"There is no more room in Canadian dentistry for separatism than there is in Canadian politics," the CDA president declared. "Instead of a heated rivalry between the provincial and national bodies, they should cooperate as partners in the interests of all Canadian dentists and all Canadians."

### Saskatchewan's corporate member grant increased

The College of Dental Surgeons of Saskatchewan has voted to increase its annual grant to the Canadian Dental Association from $55 to $60 per registered member in 1971. The decision was made at the November 1970 fall meeting of the council of the college.

Six provinces will pay at the $65 rate this year. They are British Columbia, Alberta, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland. Quebec will pay $55, Manitoba $50 and Ontario $40 per capita. The Manitoba Dental Association will decide later this month whether to increase its grant.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on November 30, 1970:

*Fixed Income Fund* $10.740;

*Common Stock Fund* $20.805.

Total assets (market value) of the plan were $8,677,122.64.

The following portfolio purchase occurred during the preceding month: 2,500 shares Weldwood Canada Limited.

Section 79B of the Income Tax Act permits tax free contributions of up to 20 per cent of earned income or $2,500, whichever is less, to a personal retirement savings program.

The Royal Trust Company, trustee of the CDA Retirement Savings Plan, offers two separate investment media: a fixed income fund and a common stock fund. Contributions may be allocated wholly or partly to the funds of the contributor's choice. Transfers between funds are allowed without penalty.

The fixed income fund, confined to guaranteed government bonds, other guaranteed fixed income securities, de-

bentures, preferred shares and other fixed income securities, offers excellent income with maximum security. The common stock fund, comprising Canadian and carefully selected American and other foreign stocks, has capital growth as its main objective.

No charges or commissions are payable on joining or withdrawing from the plan.

February 28, 1971, is the final date for contributions to the CDA Retirement Savings Plan for the 1970 taxation year. Money received after that date must be credited to 1971. Readers are urged to send their contributions early and mail them direct to Canadian Dental Service Plans Inc, 230 St. George St, Toronto 180, Ont.

## Dental Organizations

### ODA board acts on membership, dues, insurance proposals

Voluntary conjoint membership, association dues, prepayment insurance and fees were some of the top issues decided by the Ontario Dental Association's Board of Governors at its December 4-5 meeting.

The board of the Ontario association endorsed the principle of individual voluntary conjoint membership in national, provincial and local dental organizations and voted to set up a special committee to formulate terms whereby the ODA would enter into a voluntary conjoint arrangement with the Canadian Dental Association. It asked the committee to give prime consideration to protecting ODA members' continuing eligibility to participate in insurance and related programs.

ODA members will be invited to pay a voluntary supplementary fee of $50 in 1971 to offset three consecutive years of deficit financing (1969-1971) and provide some additional operating capital.

The ODA Dental Services Committee was authorized to set up an advisory service on dental prepayment for the public and insurance carriers. The board also adopted a resolution discouraging dentists' "contractual participation" in prepayment plans that are not endorsed by the ODA.

In other actions, the ODA governors:

Voted to increase from 7 to 7.5 the conversion factor in the ODA fee schedule effective March 31;

Heard that a splinter group of Ontario dental technicians seeks privileges comparable to those of dental mechanics;

Condemned Quebec's Bill 41 which sought to compel the return to work of Quebec medical specialists; and

Re-elected W. C. Deacon, Ottawa, to the ODA Executive Council.

### Symposium covers forensic dentistry subjects

Thirty-five Ontario dentists discussed the role of the dentist as an expert witness, coroners' duties, and services and functions of a forensic laboratory at a two day symposium sponsored by the Canadian Society of Forensic Odontology in Toronto last November 24-25.

Principal speaker was Toren Keiser-Nielsen, chief of the Department of Forensic Odontology at the Royal Dental College, Copenhagen, Denmark. S. L. Kogon and K. B. Petersen, both from the University of Western Ontario, described the dental identification of victims of the Woodbridge, Ont, air disaster on July 5, 1970, while E. A. White, Toronto, recounted the dental participation in identifying victims of the SS Noronic disaster in 1949.

Other speakers and guests included the supervising coroner for Ontario, the director of Toronto's forensic laboratory, as well as representatives of Toronto, Montreal and Ontario provincial police organizations.

The CSFO proposes to hold similar symposia in other Canadian centres.

### Toronto class of 2T1 sets 50th reunion

All University of Toronto dental graduates of 1921 have been invited to a reunion marking the 50th anniversary of their graduation. The event will be held during the Ontario Dental Association convention in Toronto May 16-19.

For further details, contact T. R. Marshall, 200 St. Clair Ave West, Toronto 195, Ont.

## News from Parliament

### Government asked to "curtail restrictive practices of professional societies"

The licensing of professionals came under scrutiny in the House of Commons December 2 when A. B. Sulatycky (Lib-Rocky Mountain) asked what the government is doing "to curtail the restrictive practices of professional bodies, such as the dental, legal and medical societies, so that professional services at reasonable cost will be available to all Canadians."

Consumer and Corporate Affairs Minister Ron Basford replied that the Economic Council of Canada had recommended that services, including those of professional groups, be included within the Combines Investigation Act. The recommendations of the Economic Council are in front of the government in preparing revisions to the act, he said.

## International Items

### Bucharest FDI meeting draws 1,562

Three new national dental organizations have joined the Fédération Dentaire Internationale. They are the Association Dentaire Française, which is composed of 13 dental groups in France, the Vietnam Dental Association and the Colegio de Dentistas de Chile. Their applications were approved at the FDI's 58th annual session in Bucharest, Rumania, last September.

Also approved were applications for affiliate membership by the Internation-

At the recent Fédération Dentaire Internationale session in Bucharest, Rumania, the Canadian Dental Association was represented by Executive Director W. G. McIntosh, Executive Council member L. E. English of Kamloops, BC, and Past President H. R. MacLean of Edmonton. Doctors MacLean and McIntosh participated in the scientific program.

CDA Past President H. R. MacLean, centre, delivered a paper and presided at a scientific session of the Third International Stomatological Conference in Athens, Greece, October 4-8. He is pictured with Brig.-Gen. Adjute of Africa, Gen. Alevizos of Athens and Doctor Stefanopoulos-Vrettos, president of the congress.

al College of Dentists (at large) and the International Association of Maxillofacial Radiology.

The FDI now has 74 regular member associations and one non-regional associate member association in 66 countries in addition to five affiliate members.

Total registration for the Bucharest meeting was 1,562, comprising 724 Rumanians and 838 participants from other countries. The number of countries represented was 50.

### Doctor Torneck elected to FDI committee

C. D. Torneck, a Toronto endodontist, has been elected chairman of the Endodontic Test Committee of the Fédération Dentaire Internationale.

The committee, one of five established under a joint FDI-International Standards Organization Working Group on Biological Testing of Dental Materials, deals with specific usage tests.

C. D. Torneck, a research associate at the University of Toronto Faculty of Dentistry, spoke last October 30 at the US Naval Dental School, National Naval Medical Centre, Bethesda, Maryland. Lecturing on the "Relationship of Endodontic Disease to Periodontal Disease," Doctor Torneck examined those instances where diagnosis is obscured because of involvement of pulp and periodontal ligament. Presenting Doctor Torneck with a certificate is Captain E. C. Penick, head of the Endodontics Department.

### American Dental Association approves $15 dues raise

The American Dental Association has voted to increase members' dues to $70 annually beginning January 1, 1971. The action was taken at the ADA's annual session at Las Vegas, Nevada, November 8-12.

The figure represents a $15 addition to the previous dues.

John M. Deines of Seattle, Washington, was installed as the new ADA president. He succeeds Harry M. Klenda of Wichita, Kansas.

### Education, auxiliaries top American Dental Association actions

Resolutions on auxiliaries and dental education were top issues confronting the American Dental Association's annual session at Las Vegas, Nevada, last November.

The ADA approved new "requirements for an accredited school of dentistry" that will permit individual dental schools enhanced flexibility in developing curriculum, admission requirements and new educational programs.

In much the same manner, it approved continued association encouragement of "experimentation" on improved systems of providing dental health service through more effective utilization and assignment of additional responsibilities for patient care to dental hygienists and dental assistants.

### Oral pathology group sets spring meeting in Washington

The American Academy of Oral Pathology has announced details for its twenty-fifth anniversary meeting April 27-May 1 in Washington.

The program includes essays and the annual seminar which will deal with soft tissue lesions of the head and neck and will be conducted by F. M. Enzinger from the US Armed Forces Institute of Pathology.

The Academy also offers continuing education courses in dental and oral manifestations of genetic disease, tissue injury in inflammation and hypersensitivity, fibro-osseous lesions and diagnostic virology.

Further information may be obtained from G. G. Blozis, Secretary-Treasurer, College of Dentistry, Ohio State University, Columbus, Ohio 43210, USA.

## Dental Education

### Toronto faculty announces new appointments

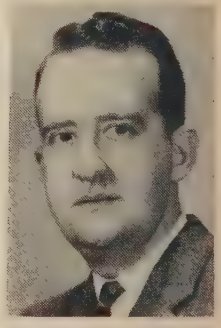
Dean Gordon Nikiforuk of the Faculty of Dentistry, University of Toronto, has announced four new senior staff appointments.

D. G. Woodside, professor and chairman of the Department of Orthodontics, has been named associate dean for undergraduate studies and curriculum affairs. A graduate of Dalhousie University, Halifax, Doctor Woodside earned an MScD from the University of Toronto where he has held teaching positions since 1956.

H. G. Poyton, professor and chairman of the Department of Dental Radiology, has been appointed associate dean for administrative affairs. Doctor Poyton holds a fellowship in dental surgery from the Royal College of Surgeons of London and a Higher Dental Diploma from the University of Edinburgh.

A. B. Hord, associate professor of dentistry, has been named assistant dean for student affairs, and J. Kreutzer has been appointed director of clinics. Doctor Kreutzer is also professor and chairman of the Department of Preventive Dentistry.

J. Kreutzer



D. G. Woodside

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### Toronto faculty holds open house Feb 7

Dental education will again be on public display when Toronto's Faculty of Dentistry holds its annual "Open House" on Sunday, February 7, from 1:00 to 5:00 pm.

Everyone interested in dentistry is invited to come and bring their families and friends. Visitors will be able to tour the dental building and see demonstrations and exhibitions by students.

There is no charge and no tickets are needed. Refreshments will be served.

The dental building is located at 124 Edward St, off University Ave, immediately south of the Hospital for Sick Children.

### New appointments at University of Alberta

Dean James McCutcheon has announced four new staff appointments at the Faculty of Dentistry, University of Alberta.

M. E. Mickleborough, who earned an MSc degree in oral surgery at the University of Illinois, has been named sessional lecturer in oral surgery.

T. R. Morgan has been appointed sessional lecturer in fixed partial prosthesis.

C. F. Nawrot, holder of a PhD from Northwestern University, is associate professor of oral biology. Doctor Nawrot is a physical biochemist whose chief interest is in mineralization of biological polymers. He was previously a polymer chemist in industrial research.

R. L. Ruzicka has been named part-time lecturer in paedodontics.

### Alberta faculty forced to turn away applicants

Space limitation again forced the Faculty of Dentistry, University of Alberta, to deny admission to many qualified applicants last fall.

Eighty-six of 279 applicants were eligible for admission to the 50 available places in the first dental year.

There are 47 men and three women students in the 1970-71 first year class. Twenty-four of them have pre-professional degrees.

## Economics

### Quebec plan to cover dental costs

The Quebec government will extend its medical care insurance plan to cover the cost of dental care for children seven years old and under, Premier Robert Bourassa said November 27.

Mr. Bourassa told the Quebec National Assembly legislation amending the plan to this effect will be introduced before the end of the current session and should come into effect early in 1971.

The present system needlessly inflates hospital costs, according to William Ferrier (NDP-Cochrane South) because some people are unnecessarily going to hospitals for certain dental treatment.

He said that inclusion of children's dental care in the plan would cost $10 million a year, and to include all dental services would cost $140 million.

### Ontario seeking way to have medicare pay for dental services

The Ontario government is reportedly looking for ways whereby dental services may eventually be provided under the government's medicare plan.

One proposal would have treatment for children covered, with services for preschool children introduced first, and then extended one school grade each year.

Alternatively, the government might choose to extend insurance to cover some dental procedures that now are paid only if they are performed in hospitals.

## Public Health

### Yukon's school care program covers six grades

School children up to grade 6 can now receive incremental care in the Yukon, according to C. R. Pugh, Whitehorse, who directs the program. Parental request for inclusion of each child is required.

The program provides complete yearly examination by a dentist, prophylaxis and topical fluoride applications, as well as simple fillings and extractions.

Ready for another busy year are these three dental nurses working in the Yukon school dental health program. Freda Nye and Lee Oldham, left and centre, were trained in London, England, and Ibi Pendley is from Christchurch, New Zealand. Photo provided by courtesy of The Whitehorse Star.

## EQUIPMENT: should dentists lease or purchase it?

A dentist who contemplates purchasing or leasing dental equipment should examine the relative advantages of the two financing methods with his auditor. This advice comes from the Canadian Dental Association's Taxation Committee which compared typical leasing costs with current interest rates (average: 9 per cent) for demand bank loans.

The committee found that the higher a dentist's taxable income is, the more likely the savings obtainable through leasing.

Dentists whose taxable income is $25,000 or over will find that leasing costs about the same as a demand bank loan.

In the $15,000 to $25,000 taxable income bracket, leasing costs about $300 more than a bank loan.

In the $12,000 to $15,000 taxable income bracket, leasing costs about $600 more than the bank loan; and in the $10,000 to $12,000 taxable income bracket, leasing costs about $900 more.

Offsetting the higher leasing rates is the fact that the contract usually includes provision for complete insurance and forgiveness of payment due to sickness. This coverage may cost up to $875 over five years. As a consequence, the five year cost of leasing or purchasing with the aid of a bank loan is very nearly the same. Accordingly, a dentist must look at other aspects of the two systems for real advantages or disadvantages.

One of the main attractions of leasing is that it frees capital for other purposes. This capital could be invested. But dentists should weigh the two methods in light of their own financial position and their personal requirements for capital and, according to the Taxation Committee, every dentist should consider this matter with his own auditor.

Most of the treatment is carried out by three school dental nurses in the schools. One was trained in New Zealand; the other two in England. More complicated treatment is handled by dentists.

Children who enter a Yukon school for the first time, after grade 1, must present a certificate of good dental health, signed by a dentist, before they can enrol in the dental program, says Doctor Pugh.

### Authoritative nutrition texts listed

The Toronto Nutrition Committee has issued a list of nutrition books which can be recommended by dentists and others concerned with public health, research and dietetics.

Titled the *Selected List of Reliable Nutrition Books (revised 1970),* the document may be obtained for 25 cents from: The Library Committee, Toronto Nutrition Committee, PO Box 744, Terminal A, Toronto 1, Ont.

Included in the list are general nutrition books for the public, cook books, books for children and teenagers, texts for physicians, dietitians and nutritionists, and texts for students in nursing, home economics and education courses. Other works listed cover the subjects of special diets, food composition, nutrition surveys and world food problems.

The Toronto Nutrition Committee is composed of persons who are active in public health, research, dietetics or industry.

## Fluoridation

### End of year fluoridation gains, losses

Fluoridation was accepted by Ontario voters in Sarnia and Georgetown on December 7 but rejected in Trenton and Sault Ste. Marie.

In eastern Ontario, the town council of Hawkesbury passed an ordinance to start fluoridation in January 1971. Blind River voters also decided to continue the measure which came into effect there in January 1966.

In Quebec province, Sainte-Foy, a suburb of Quebec city, also plans to fluoridate its water supply.

### South Dakota voters uphold mandatory fluoridation

South Dakota voters have approved fluoridation in the first American statewide referendum on the subject.

Voters were asked to repeal the state's mandatory fluoridation law which was enacted in 1969.

South Dakota is one of seven American states having state fluoridation laws; the others are Minnesota, Illinois, Michigan, Connecticut, Delaware and Ohio.

If the vote had turned down fluoridation, many of the cities which had met the mandatory law's deadline for fluoridating would have had to de-fluoridate.

## Research

### Laser beam successful in prosthetics soldering

Laser welding may eventually replace conventional soldering of dental bridges and other appliances, according to a dental laser expert. T. E. Gordon of Orlando, Florida, claims the advantages of laser welding include large savings in chair and laboratory time as well as an accurate fit of the fixed partial denture prosthesis.

Addressing last November's American Dental Association scientific session, Doctor Gordon said the "laser has been shown to have direct practical application to precision fusion welding of dental fixed partial prostheses."

The laser process can reduce the time required to fabricate a joint for the appliance from over one hour by the shortest current conventional methods to an average of four minutes. This procedure can enable the dentist to try out the partial prosthesis during various stages of the construction and permit final laboratory welding within minutes for final insertion of the appliance inside the patient's mouth without waiting for a reappointment.

The procedure also enables the dentist during the same patient visit to check the final fit of the finished appliance and its seating quality in the mouth and then perform the welding of the prosthesis within minutes, he said. The laser welded process reduces distortion caused by uneven cooling of the metal and solder shrinkage.

### Oral surgeon endorses ketamine

The revolutionary new drug ketamine is "probably the safest anaesthetic drug available," but must be administered by persons thoroughly trained in anaesthesiology, oral surgeons were told at a recent meeting in Miami, Florida.

The endorsement and warning came at the scientific session of the American Society of Oral Surgeons, and was delivered by William Greenfield, chairman of the ASOS Committee on Anaesthesia.

He was joined in the discussion by the developer of ketamine, Guenter Corssen, Birmingham, Alabama.

The drug, which has been criticized for causing LSD-type side effects, is marketed under the trade names Ketalar (Parke-Davis) and Ketaject (Bristol, Myers Company).

Doctor Corssen explained that the new drug was "completely different" from other anaesthetics. Other drugs, he said, depress a patient's entire central nervous system, putting him to sleep, whereas ketamine acts only on parts of the body, leaving other parts alone, or even stimulating them.

Doctor Greenfield explained that the drug operates mainly on the midbrain, blocking sensory information but leaving the patient conscious.

Commenting on the alleged LSD-type side effects, Doctor Greenfield said: "I don't think it's a valid comparison, because with ketamine it's controllable, it's predictable in its effect and, from the therapeutic point of view, we got a total analgesia, which is what we're aiming at."

Doctor Corssen outlined many areas where he felt ketamine could be used, particularly in cases of poor-risk patients where standard anaesthetics, which would lead to depression of many bodily functions, "cannot be tolerated."

He also said ketamine was being shown to be safe for heart patients, especially patients who could not tolerate the effects of a conventional anaesthetic.

### Describes new lighting system for dental office

The dental office of the future will have automatically moving lights above the patient's head and supplemental lighting sources such as fibre optics, a dental practice administration expert told the American Dental Association's annual scientific session in Las Vegas last November.

With the rapidly changing state of dentistry today, flexibility in mounting and position of dental lighting must be developed, said S. Meigs Jones of Kansas City.

"No longer can a dental operating light be mounted only on a unit, for a unit is often mobile," he added. Dentists today should consider obtaining operating lights which offer a mount suitable to the modern office and technique preference.

Doctor Jones forecast increased utilization of the fibre optics light which provides a cold concentrated high-intensity light source which can be effectively applied to the transillumination of teeth and other oral structures.

"It often shows the degree of undermined carious tooth structure more accurately than a radiograph, and can improve the identification of proximal caries, especially in posterior teeth," he said.

### Tears aid diabetes detection

Sample tears may be a new and effective screening method for dentists to detect a diabetic patient, according to E. L. Truelove, an Indiana University dental scientist.

The test involves obtaining a sample of tear fluid from the patient on a piece of paper and pressing it for 15 seconds against another, specifically treated paper. A tinge ranging from blue to black on the paper indicates a positive reaction to diabetes, he explained.

Addressing the American Dental Association scientific session last November, Doctor Truelove estimated that a dentist probably sees 25 patients with diabetes annually and 12 of these patients may be unaware of the disease. If a dentist suspects diabetes in a patient, the two conventional screening methods would be analysis of a urine sample or of a blood specimen. Both of these techniques are adequate but both have disadvantages. The blood specimen is collected by a finger prick and the urine sample may inconvenience the patient who has to collect and transport the sample to the dentist's office.

Doctor Truelove stressed that the tear test is inexpensive and requires less than 30 seconds and is highly reliable.

### Tooth-to-tooth fibres found in animal studies

Two American dental researchers have made a discovery which could alter some basic concepts of orthodontic treatment.

M. B. Quigley, University of Alabama, and F. A. Cohn, University of Tennessee, have found in the mouths of laboratory animals fibres which pass from tooth to tooth, going completely through the socket wall. Dental anatomists have believed that the fibres terminated just beneath the surface of the socket which they penetrated.

"Many ideas of how moving teeth to correct malalignment or removal of teeth affects the inside of the mouth may have to be altered," said Doctor Quigley. "An entirely new concept of how teeth are maintained in the mouth may have to be formulated."

Doctor Cohn added that an explanation may be near as to why teeth which have been corrected through orthodontic treatment tend to move back toward their original positions. The fibres may be acting as "springs" to make them return.

Added Doctor Quigley: "Also, there are other questions to be answered. For instance, we know that with age, teeth atrophy in the mouth, but we have never found a satisfactory theory to explain this. What we must ask is, 'do the fibres calcify with age and destroy the support of the teeth and, if so, can this be controlled?' "

## Awards and Appointments

**A. D. C. Munro,** Ottawa, is the winner of the 1970-71 Ronson Scholarship in Periodontics, it has been announced by the Faculty of Dentistry, University of Toronto.

The $2,000 award, originated by Ronson Products of Canada Limited, is open to all students entering the first year of the postgraduate course in periodontics. The winner is selected on the basis of scholarship and proficiency by the Council of the Faculty of Dentistry with the advice of the Department of Periodontics.

Helen Armstrong

Admitted as an associate member of the Canadian Dental Association: **Mrs. Helen Armstrong,** Reaboro, Ont, former secretary to the CDA executive director after 25 years' service to the Association.

The Alberta Dental Association has presented to the University of Alberta this portrait of H. R. MacLean, former dean of the University of Alberta's dental school and a past president of the Canadian Dental Association. The portrait was painted by Mrs. Marjorie Marshall.

Appointed as representatives from the Canadian Dental Association: **J. H. P. Main,** Toronto, to the National Education Committee of the Canadian Cancer Society; **D. L. Rife,** Toronto, to the Canadian Council on Children and Youth.

## Deaths

Blakely, William MacDowell. 71. Collingwood, Ont. Royal College of Dental Surgeons of Ontario, 1920. 10-11-70. Survived by Daisy (wife) and John (son).

Bonnell, Norman Leo. 64. Toronto. University of Toronto, 1931. 14-11-70. Survived by Lois (wife); Norman (son); and Mrs. R. Bell (daughter).

Climo, Charles Bryce Hannay. Ottawa. Dalhousie University, 1923. 26-10-70.

Dixon, Charlton Campbell. 55. Regina. University of Toronto, 1940. 10-11-70.

Gunton, Gordon Alvah Claude. 71. Toronto. Royal College of Dental Surgeons of Ontario, 1920. October 1970. Survived by Almeda Blanche (wife); Gordon, Ronald and Bruce (sons); Lorraine, Pat, Peggy and Rosemary (daughters); and Mrs. Edith Clark (sister).

King, John Bevan. 73. Honey Harbour, Ont. Royal College of Dental Surgeons of Ontario, 1923. 6-11-70. Survived by Dorothy (wife); Bevan, Charles and Dr. Hollister (sons); and Mrs. M. Scott (sister).

La Coursiere, Louis Philippe. 55. Shawinigan Falls, Qué. Université de Montréal, 1939. 18-10-70.

McLeod, Iain Murchison. 42. Vancouver. University of Toronto, 1961. 24-11-70. Survived by Marjorie (wife); Mrs. W. McLeod (mother); James (brother); and Mrs. Margaret Bailey, Mrs. Donna Schefel and Mrs. Winona Baker (sisters).

Prestien, Gordon Lee. 71. Hamilton, Ont. Royal College of Dental Surgeons of Ontario, 1922. 27-10-70. Survived by Dorothy (wife); Mrs. P. Dickinson and Mrs. G. Dunham (daughters); Mrs. O. F. Mueller (sister); and five grandchildren.

Quigley, Norman Joseph. 73. Banff, Alta. Royal College of Dental Surgeons of Ontario, 1919. 11-11-70.

Rushton, James Alban. 70. Port Elgin, Ont. Royal College of Dental Surgeons of Ontario, 1923. 11-10-70. Survived by Christina (wife); John F. and Roy A. (sons); Mrs. W. H. Seaman and Mrs. Bob Bell (daughters); and Leonard (brother).

Rushton, Martin Amsler. 67. London, Eng. Formerly professor of dental medicine, University of London; dean, Faculty of Dental Surgery, Royal College of Surgeons of England, 1959-62; president, British Dental Association, 1964-65; honorary LLD, University of Toronto, 1959. 16-11-70.

## L'Association

### Saskatchewan augmente sa contribution

Le Collège des Chirurgiens-Dentistes de la Saskatchewan a décidé d'augmenter son octroi annuel à l'Association Dentaire Canadienne de $55 à $60 par membre inscrit en 1971. La décision a été prise lors de la réunion d'automne du conseil du Collège en novembre dernier.

Six provinces contribueront au taux de $65 en 1971; ce sont la Colombie-Britannique, l'Alberta, le Nouveau-Brunswick, l'Ile du Prince Edouard et Terre-Neuve. Le Québec versera $55, le Manitoba $50 et l'Ontario $40 par membre. L'Association Dentaire du Manitoba se prononcera ce mois-ci sur l'augmentation de sa contribution.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 novembre 1970:

*Fonds à revenu fixe* $10.740;
*Fonds d'actions ordinaires* $20.805.

L'avoir total (valeur marchande) du régime se montait à $8,677,122.64.

Au cours du mois précédent, les transactions ont été les suivantes: achat 2,500 actions de Weldwood Canada Limited.

Le paragraphe 79B de la loi régissant l'impôt sur le revenu autorise des contributions non imposables à un programme de retraite personnelle, représentant jusqu'à 20 p.c. du revenu, avec un maximum de $2,500.

La Compagnie Trust Royal, qui gère le Régime d'épargne-retraite de l'ADC offre deux sortes de placements distincts: un fonds à revenu fixe et un fonds d'actions ordinaires. Les contributions peuvent être faites entièrement ou en partie au(x) fonds que choisit le contributeur. Il peut faire des transferts entre les fonds sans payer d'amendes.

Le fonds à revenu fixe, qui se compose de bons du trésor, d'obligations, d'actions privilégiées et d'autres sécurités à revenu fixe, offre un très bon revenu avec un risque très faible. Le fonds d'actions ordinaires, qui se compose d'actions ordinaires canadiennes, américaines et étrangères soigneusement choisies, a comme objectif principal l'augmentation du capital.

L'adhésion au programme ou le retrait n'entraîne aucun paiement supplémentaire, ni commission.

Les cotisations au Régime d'épargne-retraite de l'ADC pour l'année fiscale 1970 doivent être versées avant le 28 février 1971. Les sommes reçues après cette date devront compter pour l'année 1971.

Les lecteurs sont donc priés d'envoyer dans les plus brefs délais leur cotisation directement à: Canadian Dental Service Plans Inc, 230 rue St. George, Toronto 180, Ont.

## Chronique internationale

### L'Association Dentaire Américaine augmente ses droits de $15

Lors de son congrès annuel, qui s'est tenu à Las Vegas (Nevada) du 8 au 12 novembre, l'Association Dentaire Américaine a décidé par vote de porter à $70 la cotisation annuelle de ses membres, à partir du 1er janvier 1971.

La cotisation de l'association se trouve donc majorée de $15.

Le Dr John M. Deines, de Seattle (Washington) nouveau président de l'ADA, est entré en fonctions. Il succède au Dr H. M. Klenda, de Wichita (Kansas).

### Résolutions de l'Association Dentaire Américaine sur les auxiliaires et sur l'enseignement

Les principales questions débattues lors du congrès annuel de l'Association Dentaire Américaine à Las Vegas en novembre dernier concernaient les auxiliaires et l'enseignement dentaire.

L'ADA a approuvé une nouvelle politique qui donnera à chaque faculté dentaire reconnue une plus grande souplesse pour préparer les programmes d'études, les conditions d'admission et de nouveaux projets.

Elle a également approuvé l'appui apporté par l'association aux expériences qui visent à améliorer la distribution des services dentaires en utilisant plus efficacement les hygiénistes et auxiliaires dentaires et en leur confiant de nouvelles responsabilités dans le traitement des patients.

### En Grande-Bretagne, une taxe sur les bonbons compenserait les dépenses dentaires de la sécurité sociale

Les ventes de confiseries, si elles étaient taxées au même taux que celles de la pâte dentifrice, suffiraient à payer l'ensemble des dépenses dentaires du National Health Service, ainsi que le révèlent deux rapports publiés récemment en Grande-Bretagne.

Selon un article paru dans le numéro de juillet de la revue britannique *The Wholesale Grocer,* le montant total dépensé en confiseries (en 1969) s'élevait à 417 millions de livres sterling.

Par ailleurs, un rapport du National Suggestions Centre de Grande-Bretagne révèle que la taxe de vente est de 22 p.c. sur les bonbons, mais de 36 p.c. sur la pâte dentifrice.

M. D. R. Wright, représentant la firme Cadbury Ltd, l'une des grandes maisons anglaises de confiserie, a déclaré qu'avec £417 millions l'année dernière, le marché de la confiserie dépasse le total dépensé en soupe, produits congelés, fruits en conserves, céréales de déjeuner et café pris ensemble.

D'autre part, le National Suggestions Centre déclare que la politique du gouvernement, qui taxe le dentifrice plus sévèrement que les bonbons, est une "anomalie inexcusable".

Si nous assumons que M. Wright a raison de dire que la confiserie est un commerce très profitable et qui ne fléchit pas, une modification de la taxe sur la confiserie ne devrait pas diminuer le chiffre de vente annuelle de cet article.

En inversant la taxe du dentifrice et celle des bonbons, les recettes provenant des bonbons dépasseraient de loin £100 millions par an et couvriraient aisément les dépenses dentaires du NHS qui se situent autour de £85 millions.

### L'assemblée de la FDI à Bucarest a réuni 1,562 dentistes

Trois autres organismes dentaires nationaux viennent de se joindre à la Fédération Dentaire Internationale. Il s'agit de l'Association Dentaire Française, qui est composée de 13 groupements dentaires français, de l'Association Dentaire Vietnamienne et du Collège des Chirurgiens-Dentistes du Chili.

Leur adhésion a été approuvée lors de la 58e réunion annuelle de la FDI qui a eu lieu en septembre dernier à Bucarest (Roumanie).

L'assemblée a également admis, en qualité de membres affiliés, le Collège International des Chirurgiens-Dentistes et l'Association Internationale de Radiologie Maxillo-faciale.

La FDI groupe maintenant 74 associations comme membres titulaires ainsi qu'un membre associé non-régional, de 66 pays différents, plus cinq membres affiliés.

Le nombre d'inscriptions à la réunion de Bucarest s'est élevé à 1,562, soit 724 Roumains et 838 participants étrangers. Cinquante pays y étaient représentés.

### Le programme de la réunion de la FDI à Munich

Les dentistes allemands préparent bon accueil à leurs collègues qui sont attendus de toutes les parties du monde pour participer à la 59e réunion annuelle de la Fédération Dentaire Internationale qui aura lieu à Munich du 16 au 22 juin 1971.

Le programme scientifique débutera le vendredi 18 juin par des exposés sur les ultra-sons en dentisterie, la télémétrie intra-buccale et l'enregistrement électronique du mouvement des dents. Le dimanche 20 et le lundi 21, les séances seront consacrées à la transplantation en dentisterie et aux mécanismes sensoriels des dents.

Les programmes d'activités féminines et le divertissements prévoient des visites au Palais et à la fabrique de porcelaine de Nymphenburg. Les autres attractions comprennent une représentation de gala de l'opéra Fidélio au Théâtre National, un concert symphonique, une soirée bavaroise au Loewenbraeukeller, des défilés de mode, un banquet et un bal.

Pour tout renseignement, écrire à G. H. Leatherman, Secrétaire général de la FDI, 64 Wimpole St, Londres W1M 8 AL, Grande-Bretagne; ou à Rolf Braun, Secrétaire général du Comité d'organisation, 59e session annuelle de la FDI, Universitaetsstrasse 73, 5 Cologne 41, République fédérale de l'Allemagne.

### Conférence de chirurgie buccale en mai à Amsterdam

La 4e Conférence internationale de chirurgie buccale, organisée par l'Association internationale des chirurgiens buccaux, aura lieu du 17 au 21 mai 1971 à Amsterdam, Pays-Bas.

Les principales activités scientifiques comprendront des symposiums sur les lésions centrales bénignes des maxillaires et du sinus maxillaire, cinq séances scientifiques quotidiennes avec une centaine de conférenciers participants du monde entier et un programme cinématographique présentant 25 des derniers films internationaux de chirurgie buccale. Des visites de cliniques hollandaises sont prévues après le conférence.

Pour les renseignements concernant le voyage, le logement et d'autres excursions, écrire à Inter Scientias-USA, 634 Keeler Bldg, Grand Rapids, Michigan 49502, USA. Pour obtenir le programme de la conférence et les formules d'inscription, écrire au Secrétaire de la 4e Conférence internationale de chirurgie buccale, Congressbureau Inter Scientias, BP 9058 La Haye, Pays-Bas.

Munich, ville de clochers, qui hébergera la 59e session annuelle de la Fédération Dentaire Internationale, du 16 au 22 juin 1971.

## Affaires estudiantines

### Un étudiant de l'Université Western Ontario est élu au Bureau des Gouverneurs de l'ADC

Le premier représentant des étudiants au Bureau des Gouverneurs de l'ADC vient d'être élu. Il s'agit de Gary Cooper (résidant au no 265, Mount Pleasant Ave) de London, Ont.

L'élection de M. Cooper, qui est étudiant de troisième année à l'Université Western Ontario, a eu lieu lors de la Conférence des étudiants dentaires canadiens (21-24 octobre). Il n'aura pas le droit de vote au Bureau de l'ADC, et son mandat expirera lorsque sera convoquée la prochaine conférence des étudiants dentaires, qui est prévue pour octobre 1971. Lors d'un autre vote, M. Cooper avait également été élu président de la prochaine conférence des étudiants.

## L'enseignement dentaire

### Don du Montreal Dental Club au FCED

Le Montreal Dental Club vient de faire un don au Fonds Canadien pour l'Enseignement Dentaire, en mémoire de M. Pierre Laporte, ancien ministre du Travail du Québec.

Le Dr G. M. Dundass, président du Montreal Dental Club, a annoncé cette décision le 26 octobre, en précisant que le don serait prélevé sur les recettes du Fall Clinic du Club, qui se tenait du 26 au 28 octobre.

## Congrès régionaux

### La productivité pourrait être augmentée et les coûts réduits grâce aux auxiliaires et aux soins préventifs

Une personnalité dentaire américaine vient de recommander l'emploi d'un plus grand nombre d'auxiliaires et un élargissement de leurs tâches pour satisfaire la demande croissante de soins dentaires à un coût réduit.

Le Dr Harold Hillenbrand, de Chicago, a déclaré le 26 octobre lors du Fall Clinic du Montreal Dental Club, que les professions de santé ne peuvent pas contenir les pressions qui s'exercent dans le monde entier en vue d'une meilleure organisation des services de santé. Le Dr Hillenbrand, directeur général émérite de l'Association Dentaire Américaine et président désigné de la Fédération Dentaire In-

ternationale, a attribué ces pressions à l'accroissement de la population, à l'augmentation des revenus, à l'amélioration des soins et à la reconnaissance croissante du "droit à la santé".

L'augmentation du coût et la mauvaise distribution des soins dans les zones rurales sont les principales raisons de l'intervention gouvernementale et de la tendance à organiser des régimes de soins nationaux aux Etats-Unis.

"Ce sont là les principales origines des pressions qui s'exercent en vue d'abaisser le coût et d'augmenter la productivité des services de santé dans notre pays", a-t-il dit.

Faisant remarquer que la population des Etats-Unis aura augmenté de 50 p.c. en 1980, le Dr Hillenbrand a illustré la situation difficile des dentistes américains qui dispensent actuellement pour $2.4 milliards de soins par an et qui devront en dispenser pour $1 milliard de plus dans les trois prochaines années, avec le même effectif.

La seule solution consiste à augmenter le nombre d'auxiliaires, à élargir leurs tâches et à développer les soins préventifs, afin de réduire la demande imposée à des effectifs surchargés.

Le Dr Hillenbrand a déclaré que l'élargissement des fonctions des auxiliaires peut augmenter la productivité du dentiste et par conséquent sa clientèle et son revenu. Mais le dentiste doit demeurer pleinement responsable du traitement rendu et il lui appartient de décider de ce que les auxiliaires devront faire.

### Avantages de l'analgésie relative à l'aide de protoxyde d'azote en dentisterie

Selon le Dr Harry Langa, président de la Société Américaine d'Analgésie, l'analgésie relative par inhalation de protoxyde d'azote supprime presque totalement la peur et une grande partie de la douleur et des désagréments des opérations dentaires.

Le Dr Langa a déclaré le 26 octobre, lors du Fall Clinic du Montreal Dental Club, que l'analgésie relative peut éliminer 90 p.c. des injections locales d'anesthésiques chez les adultes, et un pourcentage encore plus élevé chez les enfants. Contrairement à l'anesthésie générale, elle peut être employée dans toutes les branches de la dentisterie.

La méthode consiste à utiliser un mélange d'air et de protoxyde d'azote pour produire une amnésie et une analgésie sans perte de conscience. On commence avec un mélange d'air et de protoxyde d'azote à 5 p.c. puis on augmente lentement la concentration du gas jusqu' à 20 ou 25 p.c., en évitant ainsi les effets hallucinatoires. Le protoxyde d'azote déprime le centre activeur réticulaire du thalamus et perturbe le passage des stimulations nocives. Le patient perd ainsi sa peur, mais conserve ses réflexes protecteurs normaux.

Le Dr Langa trouve le mélange d'air et de protoxyde d'azote supérieur aux autres analgésiques à cause de son importante marge de sécurité, de l'absence d'effets secondaires, de sa réversibilité, de sa facilité d'administration et de son action qui débute ou cesse rapidement. Le gas ne coûte pas cher et l'analgésie relative n'exige aucune médication préalable, déclare le dentiste new-yorkais.

On accélère le rétablissement en dispensant une à trois minutes d'oxygénation juste avant la fin de l'opération. Convenablement administrée, l'analgésie au protoxyde d'azote ne stimule jamais le patient et n'entraîne ni nausée, ni vomissement, ni spasme laryngien. Elle n'a jamais donné lieu à un seul accident mortel, dit le Dr Langa.

L'analgésie relative par inhalation est précieuse dans les cas où les anesthésiques locaux ne peuvent ou ne doivent être employés, par exemple en présence d'infections, de maladie cardio-vasculaire et chez les patients qui ne veulent pas d'anesthésie locale. Elle permet aussi au dentiste de travailler de façon plus détendue et donc d'améliorer sa productivité.

## L'économie

### Soins dentaires gratuits pour tous les enfants en dessous de sept ans

Le premier ministre du Québec, M. Robert Bourassa, a annoncé que les soins dentaires pour tous les enfants québécois de sept ans et moins seront couverts par l'assurance-maladie à partir du printemps 1971.

Le gouvernement négociera les honoraires avec les associations de chirurgiens-dentistes.

Le projet d'amendement à la loi de l'assurance-maladie a été déposé en première lecture au début du mois de décembre 1970 et le débat en deuxième lecture devait se poursuivre jusqu'à l'ajournement des travaux de l'Assemblée nationale le 20 décembre.

La session doit reprendre vers la mi-février au lendemain de la prochaine conférence fédérale-provinciale, mais entre-temps, au cours du mois de janvier, les parties intéressées pourront se faire entendre devant la commission parlementaire de la santé.

### L'ACDQ poursuit les négociations sur le Bill 8

Bien que l'assurance-maladie soit entrée en vigueur le 1er novembre au Québec, aucune entente n'a encore été signée entre les corps professionnels et le gouvernement.

L'Assemblée nationale avait auparavant approuvé le Bill 40, une loi assurant la mise en vigueur du régime d'assurance-maladie. Les documents compris dans la loi concernent respectivement les médecins, les dentistes et les optométristes et contiennent des règles destinées à faire fonctionner le régime, ainsi que les tarifs suivant lesquels ces trois catégories de professionnels de la santé seront rémunérés pour les services assurés qu'ils rendront.

Ces documents seront en vigueur uniquement jusqu'à ce qu'ils soient modifiés ou remplacés par des ententes conclues entre le ministre de la Santé et les organismes représentatifs de ces professionnels; à défaut de telles ententes, ils seront en vigueur jusqu'au 1er juillet 1972.

Suite à de tels évènements, l'apathie habituelle des dentistes s'est rapidement évaporée. Au début du mois de décembre l'Association des Chirurgiens-Dentistes du Québec comptait 897 membres en règle et une grande campagne de recrutement a été amorcée. Entretemps, les négociateurs de l'ACDQ et ceux du gouvernement poursuivent leurs discussions afin d'arriver à une entente équitable pour tous.

### Le Bill 39 modifie la Loi de l'assurance-maladie

L'Assemblée nationale du Québec a approuvé le Bill 39 qui apporte certaines modifications importantes à la Loi de l'assurance-maladie (Bill 8).

Le Bill 39 crée une nouvelle catégorie de "professionnel désengagé", c'est-à-dire un professionnel qui exerce sa profession en dehors des cadres du régime institué par la loi mais qui accepte d'être rémunéré suivant le tarif prévu à une entente et dont le montant des honoraires est payé à ses patients par la Régie.

Ceci permet au professionnel de se désengager du régime mais ne donne pas droit, toutefois, au dépassement d'honoraires.

L'article 2 modifie le Bill 8 afin de préciser qu'il n'appartiendra pas à la Régie de s'immiscer dans les normes de pratique professionnelle. L'article 5 prévoit que la Régie ne pourra refuser de payer le coût des services assurés pour le motif qu'elle met en doute la qualité d'un acte pour lequel il est demandé paiement et qu'elle ne pourra pas déterminer la fréquence d'un acte susceptible d'être payé. Il prévoit aussi que le paiement du coût de services assurés devra être refusé ou suspendu chaque fois que les organismes de discipline professionnelle recommanderont de la faire.

Ces deux articles rétablissent donc les pouvoirs du Collège dans le contrôle de l'acte professionnel.

## Le Bill 41: Coup de massue contre les médecins spécialistes

L'Assemblée nationale du Québec a décrété une loi qui oblige les médecins spécialistes à reprendre ou à continuer l'exercice habituel de leur profession.

En vertu de ce projet, les médecins spécialistes seront tenus de reprendre ou de continuer l'exercice habituel de leur profession pour un mois et les organismes syndicaux auxquels ils appartiennent de même que le personnel de ces organismes devront prendre les moyens appropriés pour amener les médecins spécialistes qui en sont membres à se conformer à la loi.

Le projet institue aussi une Commission d'enquête chargée de déterminer si entre le 15 novembre 1970 et le 1er juillet 1972, la population continuera à avoir accès de façon régulière aux services que rendent habituellement les médecins spécialistes. Dès que la Commission aura constaté que la population n'a plus accès à ces services de façon habituelle, elle devra en avertir le gouvernement; si ce dernier estime que la situation est susceptible de mettre en danger la santé, il peut décréter que tous les médecins spécialistes du Québec ou que tout groupe d'entre eux seront tenus de reprendre ou continuer l'exercice habituel de leur profession pour au plus deux mois. A compter de la publication de ce décret, les organismes syndicaux et leur personnel devront aussi amener leurs membres à observer un tel décret.

Le projet prévoit aussi que s'il est prouvé qu'un médecin spécialiste n'a pas exercé sa profession au cours d'une journée, il devra, pour ne pas être déclaré coupable, démontrer que cet arrêt de travail fait partie de l'exercice habituel de sa profession et qu'il n'est pas relié à une action concertée; de même, s'il est prouvé qu'un médecin spécialiste n'a pas dispensé à ses patients les soins habituels au cours d'une journée, il devra, pour ne pas être déclaré coupable, démontrer qu'il a toutefois exercé sa profession de façon habituelle et que son attitude n'est reliée en aucune façon à une action concertée de médecins spécialistes.

Le bill précise aussi qu'un médecin spécialiste ne sera pas soustrait à l'application de la loi du seul fait qu'il se trouvera en dehors de l'endroit où il exerce habituellement sa profession, au cours des périodes pendant lesquelles le bill l'oblige à exercer sa profession.

En vertu du projet, des amendes de $200 à $500 par jour ainsi qu'une peine d'au plus un mois de prison pourront être imposées aux médecins spécialistes qui ne se conformeront pas à la loi.

Des amendes de $5,000 à $50,000 par jour pourront être imposées aux organismes syndicaux et à chacun des membres de leur personnel s'ils ne se conforment pas à la loi; des peines d'au plus un an de prison pourront aussi être imposées en ce cas aux dirigeants syndicaux et aux membres de leur personnel.

Les poursuites seront intentées suivant la Loi des poursuites sommaires et une même plainte pourra se rapporter à plusieurs infractions.

## Faut-il louer ou acheter l'installation pour le cabinet dentaire?

Le dentiste qui envisage d'acheter ou de louer une installation dentaire devrait examiner les avantages respectifs des deux méthodes de financement avec son comptable. Voilà le conseil que donne le Comité des impôts de l'Association Dentaire Canadienne après avoir comparé les frais ordinaires de location avec les taux d'intérêt actuels (9 p.c. en moyenne) des prêts de banque remboursables à demande.

Le comité a observé que la location a d'autant plus de chances d'être économique que le revenu imposable du dentiste est plus élevé.

Pour les dentistes dont le revenu imposable est de $25,000 ou plus, la location coûte à peu près autant qu'un prêt bancaire remboursable à demande.

Lorsque le revenu imposable se situe entre $15,000 et $25,000, la location coûte environ $300 de plus qu'un prêt bancaire.

Pour un revenu imposable allant de $12,000 à $15,000 la location coûte près de $600 de plus qu'un emprunt bancaire, et pour un revenu imposable de $10,000 à $12,000, la location coûte environ $900 de plus.

Le coût plus élevé de la location est compensé par le fait que le contrat prévoit d'ordinaire une assurance complète et la remise des paiements en cas de maladie. Cette couverture peut coûter jusqu'à $875 sur cinq ans. Il s'ensuit que sur une période de cinq ans, les frais de location ou d'achat à l'aide d'un emprunt bancaire sont sensiblement les mêmes. C'est donc ailleurs que le dentiste doit chercher les vrais avantages ou inconvénients des deux systèmes.

La location présente surtout l'avantage de libérer un capital pour l'employer autrement, dans un placement par exemple. Les dentistes doivent évaluer les deux méthodes par rapport à leur propre situation financière, à leurs besoins personnels en capital et examiner la question avec leur comptable, comme le conseille le Comité des impôts.

## Le Bill 41 est révoqué

La Fédération des médecins spécialistes et le gouvernement du Québec étant sur le point d'aboutir à une entente collective dans le cadre de l'assurance-maladie, le ministre de la Santé, M. Claude Castonguay, a annoncé que le Bill 41, qui obligeait les médecins spécialistes à reprendre le travail le 13 octobre dernier, a été abrogé et qu'une première lettre d'entente a été signée qui a pour but de réduire le délai de 90 à 30 jours pour les avis de non-participation au régime.

## Le Montreal Dental Club demande à participer aux négociations sur l'assurance-maladie

Le Montreal Dental Club a demandé à M. Claude Castonguay, ministre de la Santé du Québec, d'accorder un siège à part à un représentant de ses membres à la table de négociations sur l'assurance-maladie.

Le Club s'est déclaré inquiet à propos des limitations contenues dans la Loi de l'assurance-maladie (Bill 8) en ce qui concerne la capacité future de la profession de satisfaire la demande du public, et surtout la liberté du patient de choisir les services professionnels les plus compétents.

## L'Ontario chercherait à inclure certains services dentaires dans le régime de l'assurance-maladie

Le gouvernement de l'Ontario, dit-on, chercherait le moyen d'inclure certains services dentaires dans le régime gouvernemental de l'assurance-maladie.

Une proposition viserait à couvrir les traitements dispensés aux enfants, d'âge préscolaire d'abord, puis aux enfants scolarisés, à raison d'une année scolaire par an.

Un deuxième choix permettrait au gouvernement d'étendre l'assurance à certains services dentaires qui ne sont actuellement payés que s'ils sont dispensés dans un hôpital.

Selon William Ferrier (NPD-Cochrane Sud), le système actuel gonfle inutilement le coût des hôpitaux, car des gens s'adressent sans nécessité aux hôpitaux pour certains traitements dentaires.

Il a déclaré que l'inclusion dans le régime des soins dentaires pour les enfants coûterait $10 millions par an, et que l'inclusion de tous les services dentaires coûterait $140 millions.

Par comparaison, le ministre de la Santé, M. Thomas Wells, estime que les services des médecins payés par l'assurance se sont élevés à $415 millions l'année dernière.

### Le coût des soins dentaires augmente

Au cours des neuf dernières années, le coût des soins de santé a augmenté en moyenne de 3.7 p.c. par an, contre 2.9 p.c. en moyenne pour l'Indice des prix à la consommation, révèle un rapport rendu public par le ministre de la Santé et du Bien-être, M. John Munro, et qui concerne le mouvement des prix des soins de santé au Canada d'avril 1961 à avril 1970.

Le rapport, qui se fond surtout sur des données fournies par les Indices des prix à la consommation, montre également qu'au cours de la dernière période de 12 mois, les augmentations les plus fortes dans le domaine de la santé concernent le coût des soins d'optométrie (8.9 p.c.) et les honoraires des dentistes (6.8 p.c.). Les honoraires de médecins n'entrent pas en compte pour les provinces où un régime public d'assurance-maladie est en vigueur. Toutefois, on signale, au cours des derniers 15 mois, une augmentation de 6.4 p.c. des honoraires médicaux régis par les tarifs des associations médicales provinciales dans neuf provinces, le Québec exclu.

La plus forte moyenne d'augmentation annuelle parmi les soins de santé au cours de la période de neuf ans revient aux honoraires dentaires, avec 5.5 p.c., déclare le rapport. Les soins d'optométrie ont augmenté en moyenne de 4.6 p.c. Les honoraires médicaux ont augmenté à la moyenne annuelle de 3.7 p.c. La moyenne annuelle des produits pharmaceutiques accuse une légère baisse de 0.3 p.c. Le rapport fait cependant remarquer que les effets des prix des nouveaux médicaments d'ordonnance ne paraissent pas dans l'indice des prix.

Les prix des hôpitaux sont exclus de l'Indice des prix aux consommateurs depuis qu'en 1961 des régimes publics d'assurance-hospitalisation ont été mis en place dans toutes les provinces. Au cours de la période 1961-68, le coût de l'hôpital par patient et par jour a augmenté en moyenne de 10 p.c. par an.

Le rapport fait certaines comparaisons entre les progressions récentes des honoraires au Canada et au Etats-Unis. Au cours des trois dernières années, les honoraires des dentistes ont augmenté à raison de 7.3 p.c. par an au Canada contre 5.9 p.c. aux Etats-Unis.

## La fluoration

### La ville de Saint-Hyacinthe sera fluorée en 1971

Le 2 novembre dernier, le conseil municipal de la ville de Saint-Hyacinthe a accepté le principe de la fluoration de l'eau potable.

Le coût d'opération sera d'environ 13 à 14 sous par habitant par année et une subvention spéciale du gouvernement peut être obtenue pour l'achat de la machinerie requise.

L'eau sera fluorée à compter de 1971.

### Moncton a adopté la fluoration

Moncton est la première ville du Nouveau-Brunswick qui ait décidé d'adopter la fluoration. Le service d'eau de cette municipalité est fluoré depuis le 20 septembre.

Edmundston est en train d'acquérir l'équipement nécessaire, bien que le débat sur la fluoration n'y soit pas encore clos, selon les dernières nouvelles.

Les localités du Nouveau-Brunswick qui utilisent l'eau des bases militaires bénéficient également de la fluoration, puisque le ministère fédéral de la Défense a demandé, il y a deux ans, à toutes les bases de l'adopter. La plus grande d'entre elles est Oromocto, qui a été construite pour être la ville-dortoir de la base Gagetown, et utilise son service d'eau. Les autres sont la base aérienne de Chatham, la base de radar de St. Margaret et la base navale de Coverdale.

Les villes de Saint John et de Hartland ont toutes deux prévu d'effectuer un référendum sur la fluoration lors des élections municipales de 1971.

Le village de Nashwaaksis, tout en approuvant l'idée en principe, n'a encore pris aucune mesure.

Woodstock s'est prononcé contre la fluoration lors d'un référendum en 1968. St. Stephen et Sussex en ont discuté mais demeurent indécis.

### Une affection de l'oreille aboutissant à la surdité serait liée à la carence de fluor

L'eau fluorée peut prévenir la surdité due à une affection de l'os de l'oreille interne. Cette nouvelle observation, qui s'inscrit dans les recherches sur les effets bénéfiques des fluorures, a été signalée dans une étude sur l'incidence de la maladie de l'étrier dans des régions fortement ou peu fluorées.

Dans *Archives of Otolaryngology* (novembre 1969), le Dr H. J. Daniel, signale quatre fois plus de cas de maladie de l'étrier dans des endroits du Mississippi peu fluorés que dans des régions fortement fluorées du Texas.

Le Dr Daniel écrit que ces données semblent indiquer que la consommation d'eau à faible teneur en fluor (plus de 0.6 ppm) contrairement à la consommation d'eau à forte teneur en fluor (plus de 1.9 ppm) peut augmenter les chances d'apparition de surdité due à l'oto-sclérose de l'étrier.

L'incidence de ce type de surdité par rapport aux autres types de surdités était beaucoup plus grande dans la zone peu fluorée.

Le Dr Daniel réclame d'autres recherches sur le rôle que joue le fluor pour prévenir ou pour maîtriser l'oto-sclérose.

## L'hygiène dentaire publique

### Au Yukon, un programme de soins couvre les écoliers du primaire

Les écoliers du Yukon de la première à la sixième année peuvent maintenant bénéficier d'une plus grande gamme de soins dentaires, selon le Dr C. R. Pugh, de Whitehorse, qui en dirige le programme. Pour que leurs enfants y soient inscrits, les parents doivent en faire la demande.

Le programme comprend un examen annuel complet pratiqué par un dentiste, des soins de prophylaxie et des applications topiques de fluor, ainsi que des obturations simples et des extractions.

Les soins sont exécutés, en majeure partie dans les écoles, par trois infirmières dentaires scolaires. L'une d'elles a été formée en Nouvelle-Zélande, les deux autres en Angleterre. Les traitements plus complexes sont effectués par des dentistes.

L'enfant qui entre dans une école après la première année doit présenter un certificat de bonne santé dentaire émis par un dentiste, avant de pouvoir s'inscrire au programme dentaire.

## La recherche

### Les nouveaux systèmes d'éclairage du cabinet dentaire

Un expert en administration de cabinet dentaire a déclaré, lors d'une séance scientifique du congrès de l'Association Dentaire Américaine qui a eu lieu à Las Vegas en novembre dernier, que le cabinet dentaire de l'avenir serait équipé de lampes se déplaçant automatiquement au-dessus de la tête du patient, et de sources de lumière supplémentaires transmises le long de fibres.

Le Dr S. M. Jones, de Kansas City, a déclaré qu'à cause de l'évolution rapide de l'art dentaire, il fallait mettre l'accent sur la souplesse des positions et du montage des éclairages dentaires.

Une lampe d'opération dentaire ne peut plus être montée seulement sur l'unit dentaire car l'unit est souvent mobile. Les dentistes d'aujourd'hui devraient rechercher des lampes d'opération dont le montage convient au cabinet moderne et à leurs préférences techniques.

Le Dr Jones prévoit une plus vaste utilisation du type de lampe qui transmet la lumière le long de fibres et qui fournit une source de lumière froide concentrée de haute intensité qui peut être employée efficacement pour la transillumination des dents et d'autres structures buccales.

Elle indique souvent le degré d'atteinte de la structure dentaire par la carie avec plus de précision qu'une radiographie, et elle peut faciliter l'identification des caries proximales, surtout dans les dents postérieures, a-t-il déclaré.

## Le dépistage du diabète dans un échantillon de larmes

Selon le Dr E. L. Truelove, un chercheur dentaire de l'Université de l'Indiana, les dentistes pourraient déceler efficacement les patients diabétiques grâce à un échantillon de larmes.

Le test consiste à prélever chez le patient un échantillon de liquide lacrymal sur un morceau de papier et à presser celui-ci pendant 15 secondes contre un autre morceau de papier spécialement traité. La coloration du papier d'une teinte allant du bleu au noir indique une réaction positive au diabète, a-t-il expliqué.

Parlant lors d'une réunion scientifique de l'Association Dentaire Américaine en novembre dernier, le Dr Truelove a estimé qu'un dentiste voit, chaque année, près de 25 diabétiques et une douzaine d'entre eux ignorent sans doute qu'ils sont atteints de cette maladie. Lorsqu'un dentiste soupçonne un patient d'être diabétique, les deux méthodes de dépistage traditionnelles dont il dispose sont l'analyse d'échantillons d'urine ou de sang, techniques qui présentent des inconvénients. L'échantillon sanguin doit être prélevé par piqûre au doigt, tandis que l'échantillon urinaire contraint le patient à transporter son flacon au cabinet du dentiste.

Le Dr Truelove a insisté sur les avantages de l'analyse des larmes, qui est très sûre, coûte peu et demande moins de 30 secondes.

## Un traitement à l'acide phosphorique augmente la résistance à la carie

Un chercheur du Forsyth Dental Centre a révélé, lors d'une réunion scientifique de l'Association Dentaire Américaine en novembre dernier, que le traitement préalable des dents à l'aide d'une solution d'acide phosphorique avant l'application topique de fluor augmente grandement leur résistance à la carie. "La rétention du fluor par l'émail est fortement améliorée si l'émail est légèrement déminéralisé à l'aide de l'acide phosphorique dilué avant l'application de fluor", selon le Dr Poul Gron de Boston.

Au cours d'un essai clinique, on a observé que des enfants qui avaient reçu ce traitement préalable et une application topique de fluorure de phosphate acidulé (FPA) présentaient 26 p.c. de moins de dents cariées et obturées et 32 p.c. de moins de surfaces cariées et obturées lorsqu'on les comparait, après une période d'un an, à des enfants qui n'avaient reçu que l'application de FPA.

Le Dr Gron a fait remarquer que la recherche clinique laisse penser que, lorsqu'il est appliqué à un émail légèrement corrodé, le fluor augmente la capacité de l'émail de se reminéraliser.

A propos de la difficulté d'améliorer la rétention du fluor topique par l'émail, il a déclaré que des recherches précédentes ont montré que la plus grande partie du fluor déposé dans l'émail par traitement topique est emportée au cours des premières 24 heures et une faible quantité seulement y reste fixée.

Au cours de cette étude, visant à augmenter la rétention du fluor par l'émail, des essais de déminéralisation et de déprotéinisation ont été effectués, a-t-il expliqué. Les études cliniques ont été réalisées dans une municipalité urbaine non-fluorée et l'âge des enfants examinés était compris entre sept et 16 ans.

## Découverte de fibres interdentaires chez les animaux

Deux chercheurs dentaires américains ont fait une découverte qui pourrait modifier certaines notions fondamentales des traitements d'orthodontie.

Les docteurs M.B. Quigley, de l'Université de l'Alabama et F.A. Cohn, de l'Université du Tennessee, ont découvert dans la bouche d'animaux de laboratoire, des fibres qui passent d'une dent à l'autre, traversant entièrement la paroi de l'alvéole. Les anatomistes dentaires pensaient jusqu'ici que ces fibres pénétraient la surface de l'alvéole pour se terminer juste au-dessous.

"Bien des idées sur la façon dont la bouche est affectée par le mouvement de dents en vue de corriger un alignement défectueux ou par les extractions, risquent d'être modifiées", a dit le Dr Quigley. "Il faudra peut-être se faire une idée entièrement nouvelle sur la façon dont les dents sont fixées dans la bouche".

Le Dr Cohn a ajouté que l'on allait peut-être expliquer pourquoi les dents dont le traitement orthodontique a corrigé la position ont tendance à revenir vers leur position première. Ces nouvelles fibres pourraient agir comme des "ressorts" en les ramenant.

Le Dr Quigley pense également à d'autres questions qui n'ont pas encore reçu de réponse. Par exemple, on sait qu'il se produit une atrophie des dents avec l'âge pour laquelle il n'existe pas d'explication satisfaisante. On peut alors se demander si, en vieillissant les fibres ne se calcifient pas et ne détruisent pas le support de la dent. Dans l'affirmative, peut-on maîtriser cette évolution?

## Action des sucres sur le développement des streptocoques buccaux

Des chercheurs de l'Institut national de recherche dentaire des Etats-Unis ont effectué des travaux montrant que les streptocoques buccaux qui forment des plaques et ceux qui ne les forment pas se développent rapidement dans le glucose et le fructose; mais dans le sucrose, ceux qui ne forment pas de plaques se multiplient rapidement alors que ceux qui forment des plaques s'agglutinent en colonies à croissance lente.

Quatre souches de streptocoques buccaux ont été cultivées dans des conditions favorables, en suspension dans un milieu liquide. Deux souches qui forment des plaques qui produisent du dextran et ont provoqué des caries lors d'expériences sur des animaux ont été comparées à deux souches qui vivent dans la bouche des animaux, mais sans former de plaques ni provoquer de carie.

On a observé que les sucres simples permettaient aux quatre souches bactériennes de croître très vite, leurs divisions s'effectuant toutes les 30 minutes environ. Le sucrose, sucre plus complexe, entretenait aussi une croissance rapide des bactéries qui ne forment pas de plaques, mais faisait tomber les divisions des bactéries qui forment des plaques à trois par jour environ.

Au microscope, les streptocoques se multiplient d'ordinaire en chaines séparées. Mais ce n'est que dans le sucrose que les bactéries qui forment des plaques s'agglutinent et produisent le dextran, collant et insoluble, qui leur permet de s'attacher aux surfaces lisses des dents.

L'addition de dextranase au milieu de culture de sucrose ne modifiait pas la croissance des autres souches mais accélérait la croissance des bactéries qui forment des plaques. Cette enzyme les libère de leurs amas en rompant la longue molécule de dextran en fragments plus courts et qui sont solubles. Les bactéries reprennent alors leur croissance libre tant qu'il reste suffisamment d'enzyme.

Les chercheurs concluent que le dextran insoluble, qui n'est synthétisé qu'à partir du sucrose, constitue une barrière à la diffusion autour de chaque amas ou colonie de bactéries. Tout en réduisant l'apport de nourriture, et en ralentissant ainsi la multiplication des bactéries, cette barrière insoluble leur permet de s'accrocher à des surfaces où les autres micro-organismes ne peuvent vivre en concurrence avec elles, et empêche la salive de les emporter et de diluer leurs déchets acides.

# A review of the zinc polycarboxylate cements

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**Toronto**

*Polycarboxylate cements, prepared by mixing a modified zinc oxide powder with an aqueous solution of polyacrylic acid, possess several advantages over conventional zinc phosphate and zinc oxide-eugenol cements. The powder and liquid components can be varied to yield manipulative properties ranging from fluid rapid-setting mixes appropriate for root canal therapy to viscous putty-like material suitable for periodontal packs. Calcium hydroxide or fluoride can also be added to enhance the manipulative or clinical characteristics. The polycarboxylate cements possess higher tensile strength and lower solubility than many other cements. They gain strength rapidly on setting and improve this quality on storage in water. They possess adhesive properties due to their ability to chelate to a clean calcific surface and their ability to bond to protein. They provoke no untoward reactions from pulpal, periapical or gingival tissue. Satisfactory clinical use of these materials depends on employing the correct powder-liquid ratio, dispensing the material only when it is required, cooling the mixing slab if necessary, minimum spatulation and immediate transfer of the material to the clean operative site.*

Dental cements are employed for temporary or permanent cementation of restorations, cavity lining, the retention of orthodontic appliances, filling teeth and as periodontal packs. Such varied demands have been fulfilled by two types of material: zinc phosphate and zinc oxide-eugenol cements. Though other substances such as acrylic resin cements have had limited use, zinc phosphate and zinc oxide-eugenol cements have remained the most favoured agents for over 30 years. Manufacturing improvements have given us finer grain size and stronger materials of lower film thickness, but the composition of zinc phosphate cement has changed little over this time.[1,2]

The phosphate cements have good manipulative characteristics and relatively high compressive strength when used in a sufficiently fluid consistency to give low film thickness for cementation. They are brittle, however, and they also dissolve rapidly when exposed to mouth fluids. Their acidity irritates the pulp, necessitating an insulating lining in deep cavities. Moreover, the set material does not adhere to tooth substance and has no anticariogenic properties.

There are three groups of eugenol materials: (a) the simple zinc oxide-eugenol combination which dates from 1875,[3] (b) the harder and stronger materials containing resin reinforcement and setting accelerators such as zinc acetate, and (c) the recently introduced EBA cements in which much of the eugenol is

*Les ciments au polycarboxylate préparés en mélangeant une poudre d'oxyde de zinc modifié à une solution aqueuse d'acide polyacrylique présentent plusieurs avantages sur les ciments ordinaires au phosphate de zinc et à l'eugénate. Les proportions de poudre et de liquide peuvent être variées pour créer des propriétés de manipulation allant des mélanges fluides à prise rapide et convenant au traitement des canaux jusqu'aux mélanges visqueux comme du mastic et convenant au pansement chirurgical. On peut aussi ajouter de l'hydroxyde de calcium ou du fluor pour augmenter les propriétés manipulatoires ou cliniques. Les ciments au polycarboxylate possèdent une résistance à la traction plus forte, et une solubilité plus faible que bien d'autres ciments. Leur résistance augmente rapidement lors de la prise et cette qualité s'améliore si on les conserve dans l'eau. Leurs propriétés adhésives sont dues à leur pouvoir de chélation à une surface calcifiée propre et de liaison aux protéines. Ils n'entraînent aucune réaction indésirable de la part des tissus pulpaires, périapicaux ou gingivaux. Les résultats cliniques seront satisfaisants à condition d'employer les proportions correctes de poudre et de liquide, de ne les distribuer qu'avant le mélange, de refroidir la plaque à ciment lorsqu'il le faut, de limiter au minimum le travail à la spatule et d'appliquer le mélange immédiatement au site opératoire.*

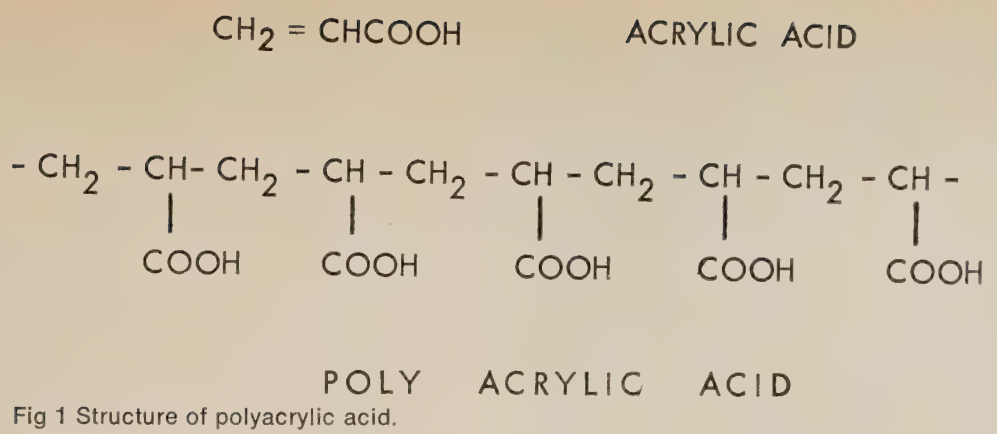

Fig 1 Structure of polyacrylic acid.

replaced by ethoxy benzoic acid and part of the zinc oxide is replaced by mineral fillers.[4] EBA cements have a compressive strength and solubility comparable to zinc phosphate cements and have been suggested for permanent cementation.[5]

The eugenol materials have a mild and perhaps palliative effect on the pulp. Their good sealing qualities, reflected by an ability to minimize leakage, may be due to chemical bonding to the tooth surface through chelation. But they lack durability in the mouth because of their low strength and continued loss of eugenol by fluid extraction.

The greater strength and other properties of reinforced EBA cements[6] have prompted their use for cementation and cavity linings. Fillings of these materials also wear excessively in the mouth.

Despite their respective advantages, none of the eugenol or phosphate cements are entirely satisfactory in clinical practice. The polycarboxylate cements were therefore developed as an entirely new material with strength properties comparable to phosphate cements, the low irritancy of eugenol cements and with improved adhesion to tooth substance under suitable conditions.[7]

**Composition and setting**

These cements are powder-liquid materials. The powder is a modified zinc oxide similar to that already used in other dental cements; the liquid is a solution of polyacrylic acid in water. Polyacrylic acid is a glass-clear solid like its distant relations, the acrylic resins, but differs from them because of its solubility in water and chemical reactivity (Fig 1).

When an aqueous solution of polyacrylic acid is mixed with an appropriate zinc oxide, the resultant paste sets to a hard mass which is almost insoluble in water. Setting is due to a chemical reaction in which zinc ions link adjacent polyacrylic acid molecules, producing a large crosslinked structure. The acid groups in the long chain molecule also have the capacity to chelate to calcium and other metals of suitable chemical reactivity. Thus, if unset cement is placed on a clean calcific or suitable metal surface, it will set through crosslinking and bond to the underlying surface through chelation (Fig 2). The potential to form these two types of bonds is considerable since each molecule has many hundreds of carboxyl groups. The polyacrylic acid will also complex and bond with protein; this may enhance or diminish its capacity for bonding to a surface, depending on the actual conditions.

The basic powder and liquid components can be varied to produce cements with widely different manipulative properties. The reactivity of the zinc oxide powder can be adjusted to give any desired setting time. Additives like calcium hydroxide or fluorides can be incorporated to enhance the manipulative or clinical characteristics of the material. The molecular weight and the concentration of the polyacrylic acid can likewise be varied to alter its viscosity in solution and yield set products of different strengths.

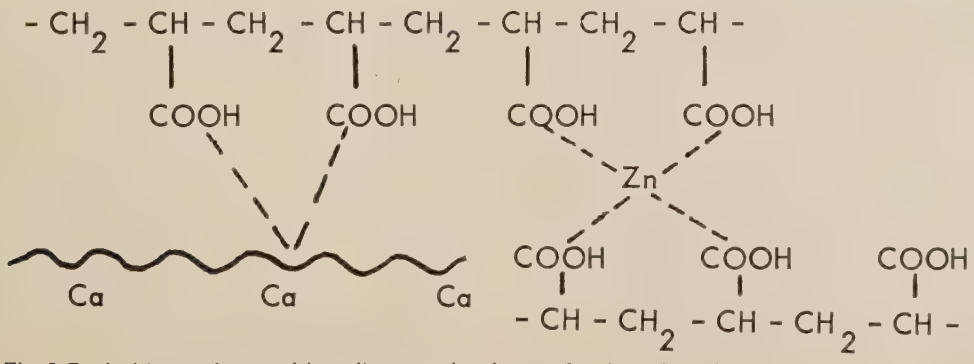

Fig 2 Probable setting and bonding mechanisms of polycarboxylate cements.

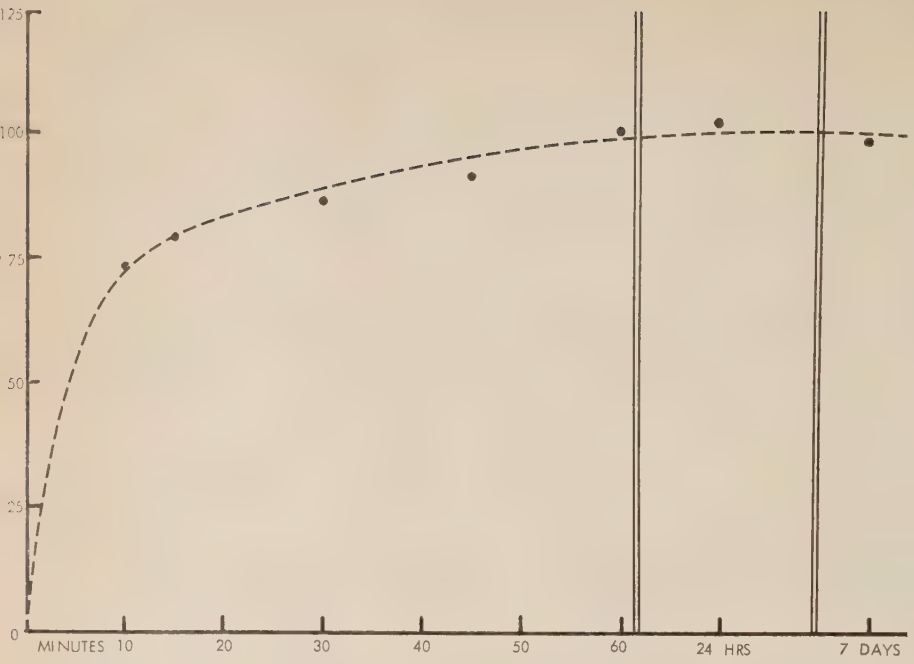


Fig 3 Rate of gain of strength of a polycarboxylate cement.

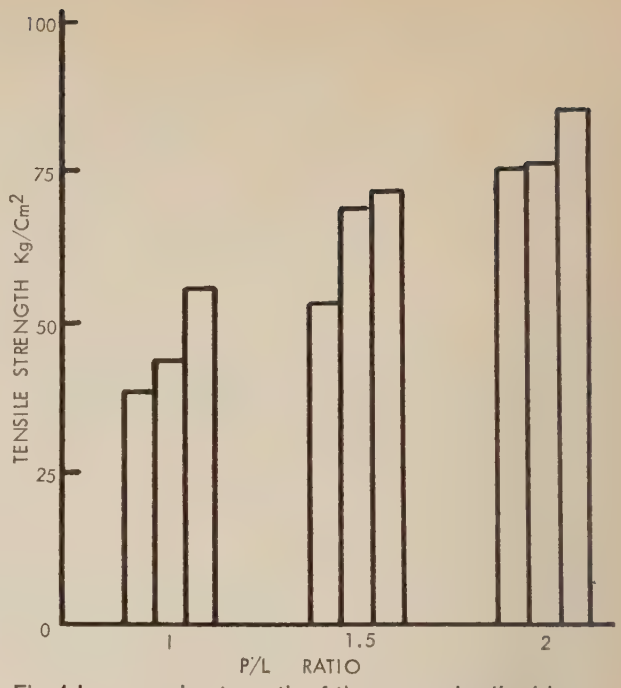


Fig 4 Increase in strength of three powder-liquid ratios of a polycarboxylate cement stored in water at 37°C after seven, 14 and 28 days respectively.

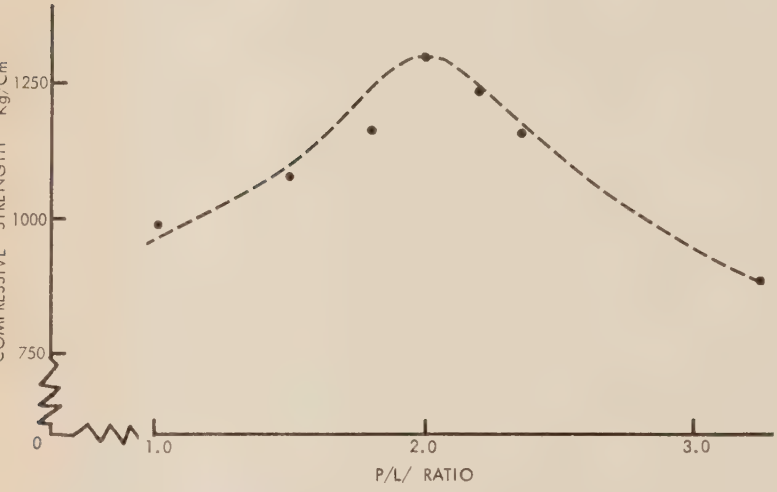


Fig 5 Variation in strength of a polycarboxylate cement according to different liquid ratios.

By control of these factors one may obtain cements ranging from fluid rapid-setting mixes appropriate for root canal therapy to viscous putty-like materials which may be suitable for periodontal packs. Many such formulations have been made and clinical trials in various applications are in progress.

The patent rights to polycarboxylate cement are owned by the National Research Development Corporation of the United Kingdom which has licensed a number of manufacturers in different countries to produce commercial forms of the material. Two such cements (Durelon and PolyC) are now available; others are expected shortly. These commercial cements were selected from the possible range of formulations and are intended for particular clinical applications. Their general characteristics approximate those of the research materials described here, though the actual values of their properties depend upon the precise composition.

The principal components are a zinc oxide powder containing less than 10 per cent magnesium oxide and a liquid consisting of an approximately 40 per cent solution of a polyacrylic acid of appropriate molecular weight in water. These formulations give manipulative properties suitable for cementing and lining materials. We have used two liquids in most of our clinical trials — a thin liquid for cementing applications and a thicker liquid giving a more viscous mix and a stronger set mass for cavity lining and cement bases.

## Properties

The properties of these cements have been assessed[7-14] by the methods described in the Fédération Dentaire Internationale's specification for dental zinc phosphate cement. Such tests may not be entirely appropriate because of the different manipulative properties and setting characteristics of these materials. The resultant data, taken in conjunction with the results of clinical trials, nevertheless provide an initial basis for evaluation of the material. Table 1 shows the materials tested.

**Polycarboxylate cements tested** **Table 1**

| Material | Supplier | Powder-liquid ratio (wt) |
|---|---|---|
| A (cementing) | Experimental | 2.0 |
| B (lining) | Experimental | 2.0 |
| C (base and filling) | Experimental | 2.0 |
| Durelon | Espe GmbH, Germany | 2.0 |
| PolyC | Amalgamated Dental Trade Distributors Ltd, UK | |
| Cementing liquid | | 3.0 |
| Lining liquid | | 2.0 |

**Strength properties of polycarboxylate and other cements** **Table 2**

| Material | Strength | | | |
|---|---|---|---|---|
| | Compressive | | Tensile | |
| | psi | Kg/sq cm | psi | Kg/sq cm |
| A | 10,000 | 705 | 850 | 60 |
| B | 13,000 | 915 | 1,500 | 105 |
| C | 18,000 | 1,270 | 2,000 | 140 |
| Durelon | 9,900 | 700 | 1,600 | 115 |
| PolyC cementing | 7,800 | 550 | 850 | 60 |
| PolyC lining | 10,500 | 740 | 1,400 | 100 |
| Average zinc phosphate | | | | |
| cementing | 14,000 | 990 | 700 | 50 |
| lining | 18,000 | 1,270 | 1,200 | 85 |
| Average EBA cementing | 5,500 | 390 | 550 | 40 |
| Average reinforced ZOE cementing | 5,600 | 395 | 600 | 45 |

Fig 6 Polycarboxylate cement filling in a monkey molar after three years.

*Strength* — The 24 hour compressive and tensile strengths of the experimental and commercial materials are shown in Table 2. The compressive strengths are comparable to, though lower, than those of phosphate cements. Other investigators[10-13] have reported similar results.

The minimum compressive strength required of a dental cement in clinical practice is not known. The FDI specification requires a limit of just under 10,000 psi for phosphate cements. The EBA cements are considerably below this. Myers[15] suggests that a value of 8,000 psi is adequate.

High strength is not needed to resist displacement under condensing forces applied to amalgam.[16] EBA cements have nearly the same retentive value as phosphate cements when they are under inlays,[17] but much less when they are under full crowns.[11] Durelon is comparable to a phosphate cement in this regard.[11,13,14] This indicates that in the clinical assessment of cements tensile or shear strength is probably more important than compressive strength.

Table 2 shows that the tensile strength of polycarboxylate cements is about 30 per cent higher than for phosphate or EBA cements. Similar results have been reported by other workers.[13,14] The higher value of tensile relative to compressive strength for the polycarboxylate cements indicates that they are more resilient, absorbing more energy up to fracture.

By altering the formulation we were able to prepare materials with compressive strengths up to 20,000 psi. We found that the cement base mix mentioned in Table 2, which shows a tensile strength of 2,000 psi, is comparable in this respect to silicate cements. Although not yet formulated as a filling material, the material has been used for temporary fillings in primary and permanent teeth. Such fillings in monkeys have lasted three years so far.

Clinical applications of other cements demand a high early strength rather than some particular value at 24 hours.[15] Polycarboxylate cements meet this requirement; they gain strength rapidly (Fig 3), attaining 75 per cent of the 24 hour value in 15 minutes and 90 per cent within an hour.

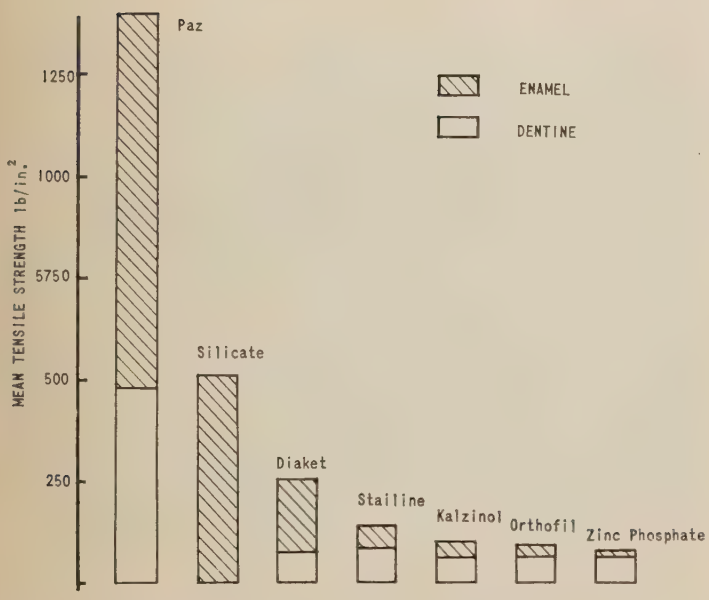


Fig 7 Adhesion values after 24 hours in water at 37°C for a polycarboxylate cement and various other cements.

**Solubility data for polycarboxylate and other cements** **Table 3**

| Material | Solubility % | |
|---|---|---|
| | Water | Citric acid (pH4) |
| A | 0.08 | 1.7 |
| B | < 0.04 | 2.45 |
| Durelon | < 0.04 | 2.05 |
| PolyC cementing | < 0.04 | — |
| Average zinc phosphate cementing | 0.1 | 1.95 |
| Average EBA cementing | 0.1 | — |
| Average reinforced ZOE cementing | 0.1 | — |

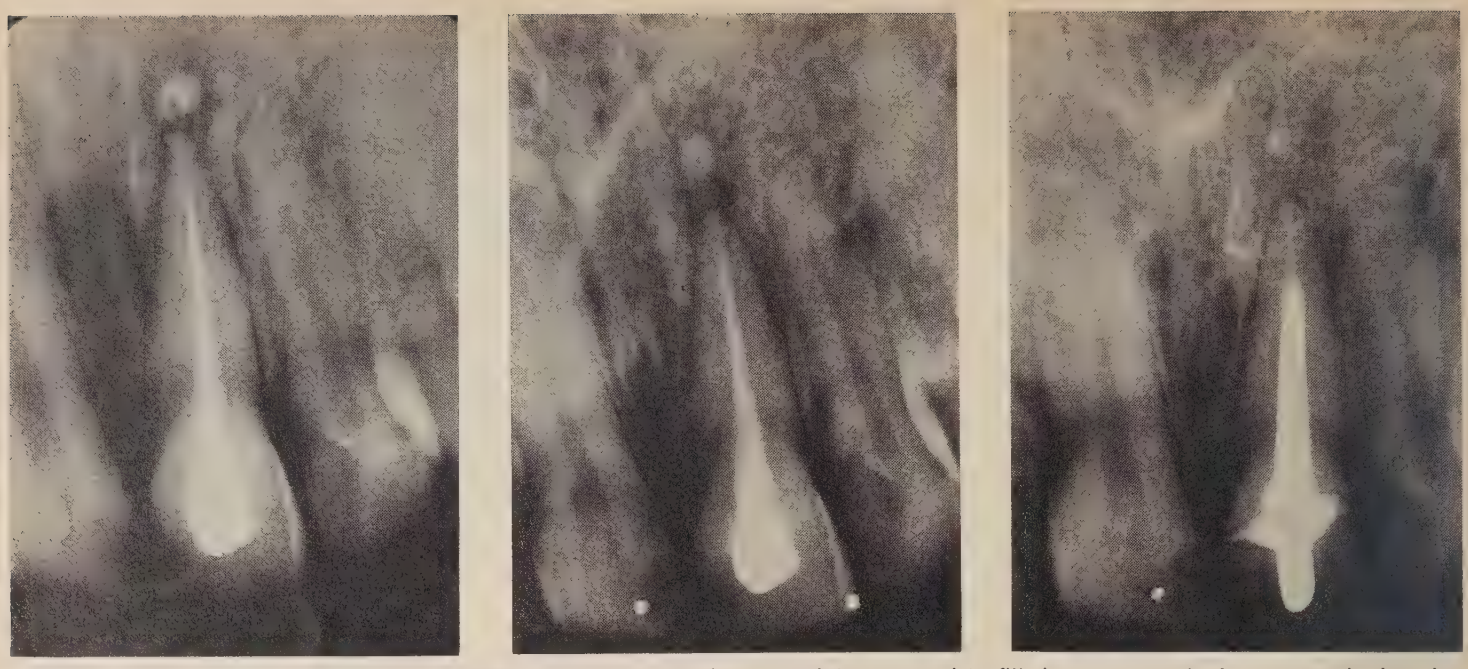

Fig 8 Response to polycarboxylate root canal cement. Left: the material was used to fill the root canal of an upper incisor in 1966. Some cement escaped into the periapical region. Centre: appearance one year later. Right: appearance two years later.

Tensile as well as compressive strength increases slightly on storage in water (Fig 4). The weakening on storage in water observed by Mortimer and Tranter[10] was apparently due to the use of faulty early commercial materials.

Cements using powders with minor amounts of magnesium oxide show a maximum strength at a powder-liquid ratio of about 2:1 by weight. Figure 5 shows this for compressive strength in the case of a cavity lining formulation. Minor variations in the powder-liquid ratio do not greatly affect the strength, which is obviously a manipulative advantage.

*Solubility* — Table 3 shows the solubility of the various cements. The average value of 0.05 per cent solubility in 24 hours is well below the 0.2 per cent limit set in the phosphate cement specification. Carboxylate cements are no more, and often less, soluble in water[18] and dilute citric acid than a number of commercial phosphate cements. Phosphate and silicate cements are 10 to 20 times more soluble in such media than in distilled water.[19]

These laboratory results do not, of course, reflect a full spectrum of clinical circumstances. In fact, solubility in saliva and under varied dietary conditions may differ markedly from in vitro values. The thickness of an exposed cement margin is also very important. The durability of cements as temporary or permanent filling materials probably depends on a combination of strength and solubility. Both factors contribute in the case of ordinary zinc oxide-eugenol cements and

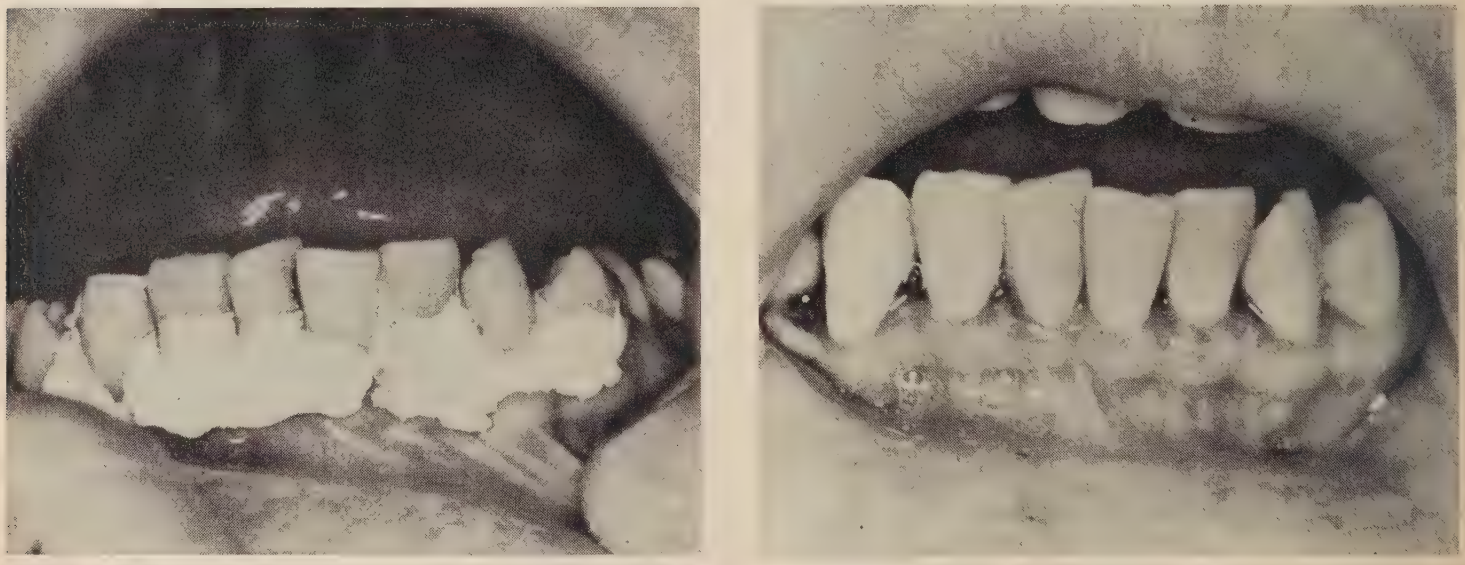

Fig 9 Tissue response to experimental polycarboxylate periodontal pack. Left: pack in situ. Right: appearance of tissues following removal of the pack seven days later.

to a lesser extent with EBA cements, while solubility is most important with phosphate cements.

Numerous crowns and bridges cemented for more than five years confirm that the oral solubility of polycarboxylate cements is consistent with laboratory results. Their experimental use as filling materials displays an adequate combination of strength and solubility for semi-permanent use (Fig 6).

*Film thickness* — Using powder-liquid ratios of 1.5 and 1.3, we obtained cementing and lining mixes of standard consistencies (in terms of the FDI specification No 6 for dental zinc phosphate cement). The resulting film thickness measurements gave values of 25$\mu$ and 35$\mu$ respectively. These values are below the specification limits of 25$\mu$ for type 1 (fine grain) and 40$\mu$ for type 2 (medium grain) phosphate cements. Film thicknesses of 25 and 40$\mu$ have been reported for the EBA cements by Brauer.[4,6] Measurement of film thickness for the polycarboxylate cements and for the EBA cements, using methods which are more akin to clinical application,[19,20] may therefore give even lower results because the flow properties of these two materials differ from those of the phosphate cements for which this test was devised.

The average grain size of the powder (which is about 10$\mu$ in the polycarboxylate cements) is not the sole factor influencing film thickness.[20,21] Other variables, such as inaccuracy of castings, can and do result in film thicknesses of the order of 100$\mu$.[22,23] But these factors operate with all of the commonly used cements.

*Adhesion* — Because they can chelate with metal ions and complex with proteins, polycarboxylate cements bond chemically to metal and other surfaces containing such ions and also to proteinaceous substrates like skin. Such adhesion, which arises through chemical bonding, must be distinguished from retention due to mechanical interlocking with irregularities in a substrate surface.

Mechanical factors are responsible for the retention of inlays and crowns cemented with the presently used dental cements. Such mechanical interlocking depends mainly upon penetration of the cement into the surface roughness and the strength of the material.

Tests under simple tension show that phosphate cements do not adhere to tooth substance or to restorative materials.[24] Equal shearing forces are required to dislodge full crowns retained with zinc phosphate cement or a mixture of the cement powder with water.[25] More recent results[11,13,14,17] show that tensile and compressive strength values are only an approximate guide to the retention values for full crowns.

Dental porcelains and resins lack appropriate metal ions and dental gold alloys are too inert to permit true adhesion by the polycarboxylate cements. Used under resin or gold, these materials rely upon mechanical retention. But they retain crowns as well as, or better than, phosphate cements because of their high tensile strength.[11,14]

The adhesion of the polycarboxylate cements to enamel and dentine and other substrates has been tested in two ways. In the first,[26] a stainless steel post was cemented perpendicularly to a prepared smooth enamel or dentine surface in a precise alignment rig. The tensile force required to break the bond was then measured after the assembly had set and had been stored in water at body temperature for various lengths of time. From the defined area of contact a tensile bond strength was calculated. In the second,[8] less precise but more rapid method, a stainless steel orthodontic button was cemented to the tooth surface but the bond strength was measured in tension, shear and peel. By introducing such variables as fatigue and thermal cycling, the effect of these different circumstances on the adhesion could also be ascertained.[9]

The results showed that the various formulations possess adhesive bond strengths which are several times greater than those of conventional cements (Fig 7).

The bond strengths obtained, which are similar to the strength of the cement under appropriate stress conditions, are of the order of 1,000 psi in tension. These values show little change when polycarboxylate bonds are soaked in water for periods up to three months,[9] whereas for all other materials they fall off virtually to zero. Furthermore, bond fractures that occur take place within the body of the polycarboxylate cement and not at either interface, demonstrating the maintenance of adhesion.

Polycarboxylate cements adhere less well to dentine than to enamel,[7] partly perhaps because of dentine's porous nature and lower calcium content. But compared to other materials, their adhesion to enamel and dentine is superior when film thicknesses such as those employed in practice are used.[8-10,26,27]

It is more difficult to assess adhesion in the mouth, particularly to dentine, because surface roughness and mechanical interlocking[28] and surface contamination may influence the results. Adhesion may nevertheless play some part in the retention of castings by polycarboxylate.[11,13]

Adhesive qualities are easier to ascertain in the case of enamel, where a clean calcific surface can be readily obtained. The attachment of stainless steel orthodontic brackets is one way of testing such adhesion. Comparison between the results from laboratory tests[8,9] and the force exerted by orthodontic appliances suggested the use of polycarboxylate cements in connection with light wire techniques. Clinical trials with attachments of various designs and construction led to a patch type bracket which was bonded to clean human enamel under defined conditions.[29] The bond under some of these brackets remained intact for as long as 14 months. Satisfactory results were also obtained with sterling silver caps. Failure of the bond was generally due to improper technique, contamination or imperfect preparation of the bonding surfaces. A clinical report on these results awaits publication and further studies and refinements of the technique are in progress.

*Tissue reaction* — Pulpal reaction to polycarboxylate cements has been assessed by trial fillings in dog, monkey and human teeth. Deep cavities were cut, using accepted techniques and leaving less than 1 mm of residual dentine. The initial response (up to one week) and longer term results (up to three years) showed very little histological or clinical evidence of pulpal irritation. These reactions were actually com-

parable to, and sometimes better than, those produced by zinc oxide-eugenol controls.[7] This work will be reported elsewhere and has recently been confirmed by Klötzer et al[12] and by Phillips and Mitchell.[30]

Implants into soft tissue and bone in rats and monkeys have been studied for periods ranging up to 28 days. Subcutaneous implants provoked almost no response.[31] Other specimens of freshly mixed cement were surrounded by a capsule of cellular connective tissue which gave histochemical reactions akin to those elicited by fibrinoid.[32] Further detailed investigations are in progress.

The cement has also been implanted into extraction sockets in monkeys, using plaster of Paris as a control in the contra-lateral sockets.[32] Seven months later the material was seen to be partly absorbed and replaced by new bone which was in direct contact with the polycarboxylate cement.[33] There were no signs of any foreign body reaction, however.

These findings accord with clinical and radiographic observations where the material, used as a root filling, has been present periapically for three to four years (Fig 8). Special formulations for periodontal packs have also elicited encouraging clinical results (Fig 9).[34]

Although polycarboxylate cement liquid has a pH of about 1.5, these findings illustrate a remarkable lack of tissue irritation. This good tissue response is confirmed by clinical experience. The research material has been clinically tested for almost five years as a cementing and luting agent for crowns and inlays and as a lining agent. Comments have been very favourable, particularly on the absence of pain during cementing and the lack of any long-term symptoms. Friend[35] has made similar remarks about the initial reaction from commercial cements.

There are three possible explanations for the low tissue irritation potential: (a) the pH of the setting cement rises rapidly to a value of between six and seven; (b) the large molecular size of the polyacrylic acid plus its ability to complex with proteins limits diffusion through the tissues and down the dentinal tubules; (c) polyacrylic acid has a low toxicity.[36-38] Interesting in this regard is the acid's inhibitory effect on virus formation and sarcoma production.[39,40]

The absence of tissue reaction suggests further possible applications for the material in the repair of surgical as well as dental defects.

## Clinical manipulation and uses

Polycarboxylate cements can be formulated to yield manipulative qualities suited for particular clinical applications. The commercial materials now available are primarily intended for cavity lining and cementation of inlays, crowns and bridges. But there will likely be further formulations for other applications—such as fluid materials for sealing root canals or filling fissures and more viscous, stronger materials for orthodontic cementation.

The polycarboxylate cements differ radically from phosphate and EBA cements in their manipulative characteristics. It is therefore advisable to make several trial mixes before putting the material to any particular use. The liquid is far more viscous than other cement liquids. Therefore, the commonest failing is to mix the cement too thinly, using too little powder, which leads to a weak set material of high solubility. The correct mix for the various clinical applications is appreciably thicker than that for conventional cements, but the material flows out quite adequately under pressure to give the desired film thicknesses. Sufficient time should be allowed for flow under full crowns, but there is no difficulty in obtaining adequate film thickness.

A polythene squeeze bottle can be used to dispense the liquid. This method is very reproducible provided the nozzle is full and the bottle is squeezed steadily. One manufacturer provides a powder scoop to measure the amount of powder so that the powder-liquid ratio will be in the required region of 1.5 to 2 by weight.

In the absence of a suitable dispensing system the correct consistency for cementation at this powder-liquid ratio can be recognized by a mix that is viscous yet just flows back under its own weight when drawn up. The lining mix should be like putty and should display little or no adhesion to the finger or to instruments. Alcohol is a suitable medium for separating the material from instruments during adaptation into a cavity.

The cement components should be dispensed only when immediately required. Exposure of the liquid to air for more than, say, 60 seconds causes loss of water by evaporation and results in a more viscous mix with variable setting behaviour. Powder and liquid should be mixed on a non-absorptive surface like glass to avoid any loss of water. If the environment is warm, the slab can be cooled to prolong the chemical reaction of setting. Spatulation should not exceed 30-45 seconds since all of the powder and liquid can be mixed at once, leaving adequate working time for all normal operative procedures.

The onset of setting can be recognized by the occurrence of stringiness followed by the development of a rubbery state. For all cementing applications the mix should be applied to the tooth while it is still glossy. Attempts to use the material when it is setting will result in unsatisfactory film thickness and diminished retention.

Because the material reacts with protein, all surfaces must be clean and free of contamination during cementation. Any film of saliva, wax or oil on the surface of the restoration or the tooth acts as a separating agent and interferes with proper wetting of the underlying surface.

The best results are obtained by preparing as smooth a dentine or enamel surface as possible. The preparation is thoroughly washed and isolated to exclude saliva or other contaminants and merely blotted dry before cementation. Excessive drying should of course be avoided, and the interior of castings should be clean.

In the case of orthodontic cementation the teeth are cleaned thoroughly with plain pumice and water, followed by water and perhaps alcohol (though excessive drying is again contra-indicated). The best method for direct cementation of orthodontic attachments to enamel is still under investigation and will be reported elsewhere. Cleanliness of the tooth surfaces is imperative since polyacrylic acid does not have the scouring quality of phosphoric acid. It is therefore necessary to

remove absorbed surface film and eliminate surface roughness as much as possible.

According to clinical experience thus far, polycarboxylate cements are satisfactory in dental practice if the appropriate precautions—correct powder-liquid ratio, dispensing only when the material is required, use of a cooled mixing slab, minimum spatulation and immediate transfer of the material to the clean preparation—are observed. These cements are in the early stage of their development, however. Further improvements will undoubtedly follow.

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# Experimental osteogenesis in embryonic and adult bone explants

**T. A. Najjar, BDS, MSc, PhD**
**Montreal**

*This study compared cellular outgrowth and differentiation potentials of fractured chick embryo tibias and adult calluses from fractured rabbit tibias. Explants from each of the two tissues were cultivated for up to 28 days in a culture medium containing all amino acids and vitamins essential for growth. Though embryonic bone displayed a greater potential for cell proliferation than the adult callus explants, neither showed any osteogenic differentiation of bone matrix formation. The author postulates that a longer period of cultivation may be necessary before cell differentiation becomes apparent. Alternatively, morphodifferentiation and matrix formation may be dependent upon the mediation of other as yet unknown chemical or mechanical factors. The identification of these factors could have an important bearing on periodontal therapy.*

*Cette étude nous a permis d'établir un système type pour étudier le taux de la multiplication cellulaire, la différentiation morphologique et la formation de la matrice au site de fracture dans les os d'embryon de poulet ainsi que dans des explants de cal osseux provenant de lapins adultes. La prolifération cellulaire fibroblastoïde a débuté deux jours après culture et a atteint son point culminant après huit jours. Elle a cependant continué de proliférer jusqu'à 14 jours dans les os d'embryon de poulet tandis qu'elle a cessé de croître et on a même pu observer de la dégénérescence hydropique et de la nécrose dans les explants de cal osseux de lapins. La prolifération cellulaire ressemblait à des fibroblastes cependant sans évidence de différentiation ostéoblastique non plus que de tissu ostéoïde ou de formation de matrice osseuse. Il se peut que les cultures ne soient pas viables assez longtemps pour que ces cellules démontrent un certain degré de différentiation et ces cellules auraient besoin de plus de stimuli biochimiques ou physiologiques pour se différencier et donner naissance à une matrice de tissu ostéoïde. D'autres travaux sont actuellement en marche pour modifier le milieu de culture afin de promouvoir la croissance cellulaire plus longtemps afin d'étudier certains facteurs invoqués dans le mécanisme de l'ostéogénèse.*

Tissue culture permits study of the growth and differentiation of cells in vitro. In bone, this has been confined mainly to embryonic bone explants. Rose and Shindler[1] demonstrated cellular outgrowth from embryonic bone cultured in plasma with nutrient fluid. Teaford and White[2] propagated explanted embryonic chick femurs in a modified Wymouth's medium with embryo extract. Cells isolated from embryo calvaria by incubation with collagenase have been shown to multiply in Eagl's culture media.[3] Linghorne,[4] Urist and McLean,[5] Urist,[6] and Goldhaber[7, 8] have also reported in vitro investigations of osteogenesis. Factors that have been investigated in relation to osteogenesis include alkaline phosphatase,[9] antiserum and corti-

**Composition of culture medium CM 199** **Table 1**

| Constituents | Concentration mg/1,000 ml |
|---|---|
| L-Alanine | 50 |
| L-Arginine-HCL | 70 |
| L-Aspartic acid | 60 |
| L-Cysteine-HCL | 0.1 |
| L-Cysteine | 20 |
| L-Glutamic acid | 150 |
| L-Glutamine | 100 |
| Glycine | 50 |
| L-Histidine-HCL | 20 |
| Hydroxy-Proline | 10 |
| L-Isoleucine | 40 |
| L-Leucine | 120 |
| L-Lysine-HCL | 70 |
| L-Methionine | 30 |
| L-Phenyl-Alanine | 50 |
| L-Proline | 40 |
| L-Serine | 50 |
| L-Threonine | 60 |
| L-Tryptophan | 20 |
| L-Tyrosine | 40 |
| L-Valine | 50 |
| B-Aminobenzoic acid | 0.05 |
| Biotin | 0.01 |
| Calcium pantothenate | 0.01 |
| Choline chloride | 0.50 |
| Folic acid | 0.01 |
| Inositol | 0.05 |
| Niacin | 0.025 |
| Niacinamide | 0.025 |
| Pyridoxal-HCL | 0.025 |
| Riboflavin | 0.01 |
| Thiamine-HCL | 0.01 |
| Vitamin A | 0.10 |
| Ascorbic acid (vit. C) | 0.05 |
| $\alpha$—Tocopherol (vit. E) | 0.01 |
| Calciferol (vit. D) | 0.10 |
| Menadione (vit. K) | 0.01 |
| Adenine | 10.0 |
| Guanine-HCL | 0.3 |
| Hypoxanthine | 0.3 |

Fig 1 The chamber used in this study showing some of the cultivated callus explants (arrows).

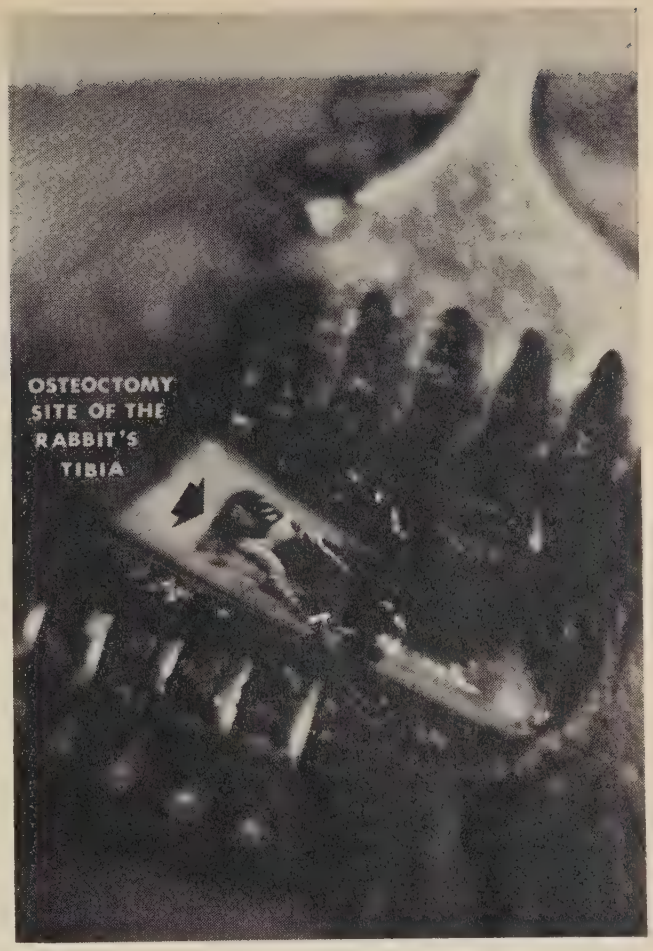


Fig 2 Bone excision in rabbit tibia. The callus formed in the osteoectomy site was cultivated to demonstrate the cellular outgrowth potential of the adult callus explants in vitro.

sone,[10] collagenolytic activity,[11] ascorbic acid,[12] and oxygen tension and glucose.[13]

The present study used an experimental model for comparing cellular outgrowth and differentiation potentials between fractured chick embryonic bones and adult calluses from fractured rabbits' tibias. The specimens were propagated in special chambers with a modified culture medium. This model will also be used in subsequent investigations to study some of the extrinsic and intrinsic factors which influence osteogenesis in vitro.

## Materials and methods

*Fractured chick embryonic bones* — Twenty chick embryos varying in age between 11 and 20 days were used. They were removed from the egg shell and placed in a container filled with the culture medium (80 per cent CM-199 [obtained from the Microbiology Institute, University of Montreal] and 20 per cent whole egg extract for the chick embryonic bones, and 20 per cent calf serum for the adult callus explants). This medium contains all amino acids and vitamins necessary for the maintenance and growth of the living tissue (Table 1).

The right and left limbs were amputated and the right tibias were fractured while the left tibias served as controls. The fractures were performed with a scalpel under a binocular dissecting microscope.

Each specimen was deposited in a chamber and subjected to frequent microscopic examination (Fig 1). Two chambers (40 in all) were prepared from each embryo, one for the fractured tibia and one for the control. The middle opening of each chamber base was covered with a sterile cover slip and the bone specimens were deposited on the cover slips. A square perforated cellophane strip was superimposed on the tissue explants and the chamber was then closed with a silicone rubber piece and the chamber cover.

Using a 25 gauge needle the chamber was filled with the culture medium and incubated at 37°C. The culture medium in each chamber was replaced every 24 hours and microscopic examination of the chamber was carried out each time the medium was changed.

The bone specimens in the chambers were fixed in 10 per cent formalin. Portions of bone from the control tibias were fixed immediately, then embedded in paraffin, sectioned and stained with haematoxylin and eosin. Other specimens were fixed and processed at two, four, six, 14 and 28 days. These sections were stained with methylene blue.

*Rabbit callus explants* — Twenty-one white male New Zealand rabbits were used. They were approximately three months of age. The animals were anaesthetized with sodium pentobarbital, and pieces of cortical bone, 1.5 x 0.5 cm, were excised from the right tibias (Fig 2).

Reopening the wounds two, six and 14 days postoperatively, the callus in each ostectomy site was re-

moved in toto under sterile precautions and placed in a sterile petri dish containing the culture medium. The specimens were immersed in the culture medium and dissected into very minute pieces which were then placed in 42 chambers. These were subsequently handled like those for the chick embryo explants.

## Results

*Fractured embryonic bones* — There was a peripheral cellular outgrowth throughout the bone section and at the site of the fracture two days after incubation. The fracture bed revealed fibroblastoid cell proliferation and fine reticular fibres but there was no distinct intercellular ground substance.

At four days, the fibroblastoid cells at the fracture site showed no osteoblastic differentiation and there was no sign of bone matrix formation (Fig 3).

Further cell formation was observed up to the fourteenth day of cultivation (Fig 4).

Thereafter, cellular outgrowth ceased at the fracture site. Some of the cells began to show cloudy swelling and hydropic degeneration while others were pyknotic, karyorrhectic and karyolytic. Thus, the new cells demonstrated no potential for osteogenic differentiation or bone matrix formation.

Microscopic examination of cross sections of the uncultivated portions of the control tibias revealed two layers of thin cortical bone. Also evident was a primitive periosteum composed of three to four layers of fibroblastoid cells with plump, hyperchromatic nuclei. The endosteum consisted of one layer of simple mesenchymal cells. In older specimens (19-20 days old) the myxomatous tissue of the bone marrow showed some differentiation into haematopoietic tissue (Fig 5).

*Rabbit callus explants* — Peripheral cellular growth began two days after cultivation and reached a peak after six days (Fig 6,7). The elongated new cells had large, oval nuclei and several cytoplasmic extensions. Further outgrowth ceased after six days of cultivation and evidence of hydropic degeneration and cellular necrosis began to appear. There was no cell differentiation or indication of bone matrix formation.

## Discussion

While embryonic bone appears to have a greater potential for cell proliferation than adult callus ex-

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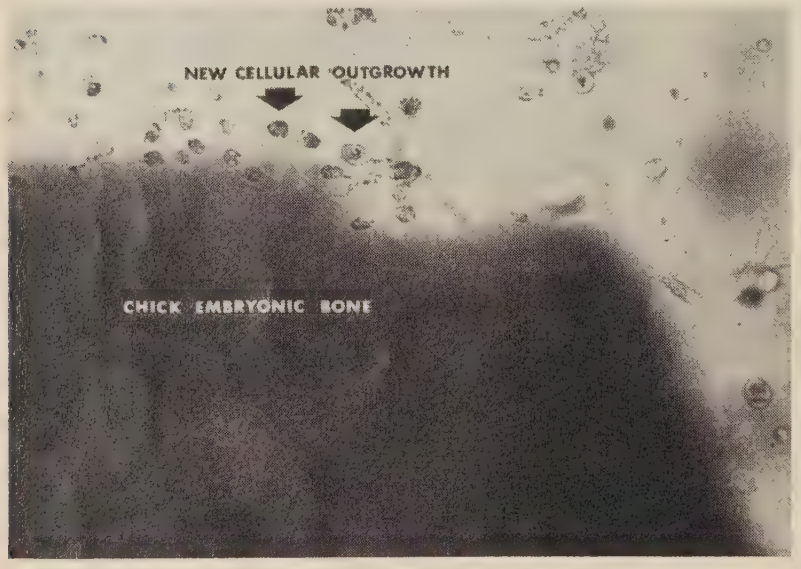


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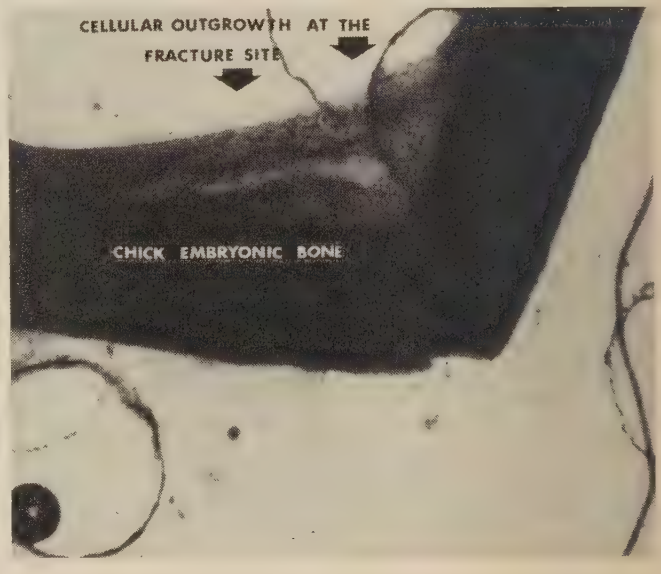

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Fig 3 Photomicrograph of chick embryonic tibia with cellular outgrowth at the fracture site four days after cultivation. These cells show no sign of osteoblastic differentiation or matrix formation. Methylene blue, x 40.

Fig 4 Photomicrograph of the fractured tibia in 17 day old chick embryo. There is marked cellular proliferation at the fracture site but no sign of bone matrix formation. Methylene blue, x 10.

Fig 5 Photomicrograph showing cross section of the 17 day old chick embryo tibia with the outer cortex (1) and primitive marrow (2). H.E., x 10.

Fig 6 Photomicrograph of rabbit callus explant after four days of cultivaton. Methylene blue, x 10.

plants, neither show osteogenic differentiation or bone matrix formation.

Presumably the cultivation did not sustain the new cellular growth long enough for further differentiation. Although the culture medium used in this study contained all the essential nutrients for cellular growth, it lacks the unidentified chemical or hormonal mediators which enhance cellular differentiation in vivo (Table 1).

In the embryo, cell differentiation is restricted by the potentiality of the genome. This results in the blocking of all except three groups of genes. The first directs the synthesis of essential metabolic enzymes while the second and third groups direct mitosis and tissue function respectively. According to Bullough,[14] the choice between genes which activate synthesis for mitosis or tissue function depends on the chalone concentration. In adult tissue the functional cells appear to age beyond a point at which any reversion to mitosis is possible. This may explain the different rates of cellular proliferation in embryonic and adult tissue, as demonstrated in this study.

Cellular proliferation and differentiation may be triggered by a chemical mediator[14] or a mechanical stimulus,[15] but evidently these mediators are missing from the in vitro experiment. Though egg extract and calf serum were used as growth factors, neither one stimulated cell differentiation. The culture medium will therefore be modified in a subsequent investigation so as to reflect some of the chemical and mechanical stimuli.

**Summary**

This study has compared the rate of cellular outgrowth, morphodifferentiation and matrix formation in the fracture bed of embryonic chick bones and in adult rabbits' callus explants. Fibroblastoid outgrowth began two days after cultivation, reaching a peak after six days. Thereafter cells continued to proliferate in the chick bones until the fourteenth day; but in rabbit explants growth ceased and the cells began to show hydropic degeneration and necrosis. There were no signs of osteoblastic differentiation or osteoid or bone matrix formation.

The duration of the experiment may not have been long enough for the cells to show differentiation. Moreover, the new cells need some additional biochemical or physiological stimuli to differentiate and produce osteoid matrix. The identification of such stimuli could have an important bearing on periodontal therapy. The culture medium will therefore be modified in a future study so as to sustain growth for a longer period and test some of the factors that may control osteogenesis.

This paper is based on a report delivered at the Association of Canadian Faculties of Dentistry-Canadian Dental Research Joint Conference, London, Ont, October 22, 1968. The study was supported by the National Research Council of Canada Grant DA-165.

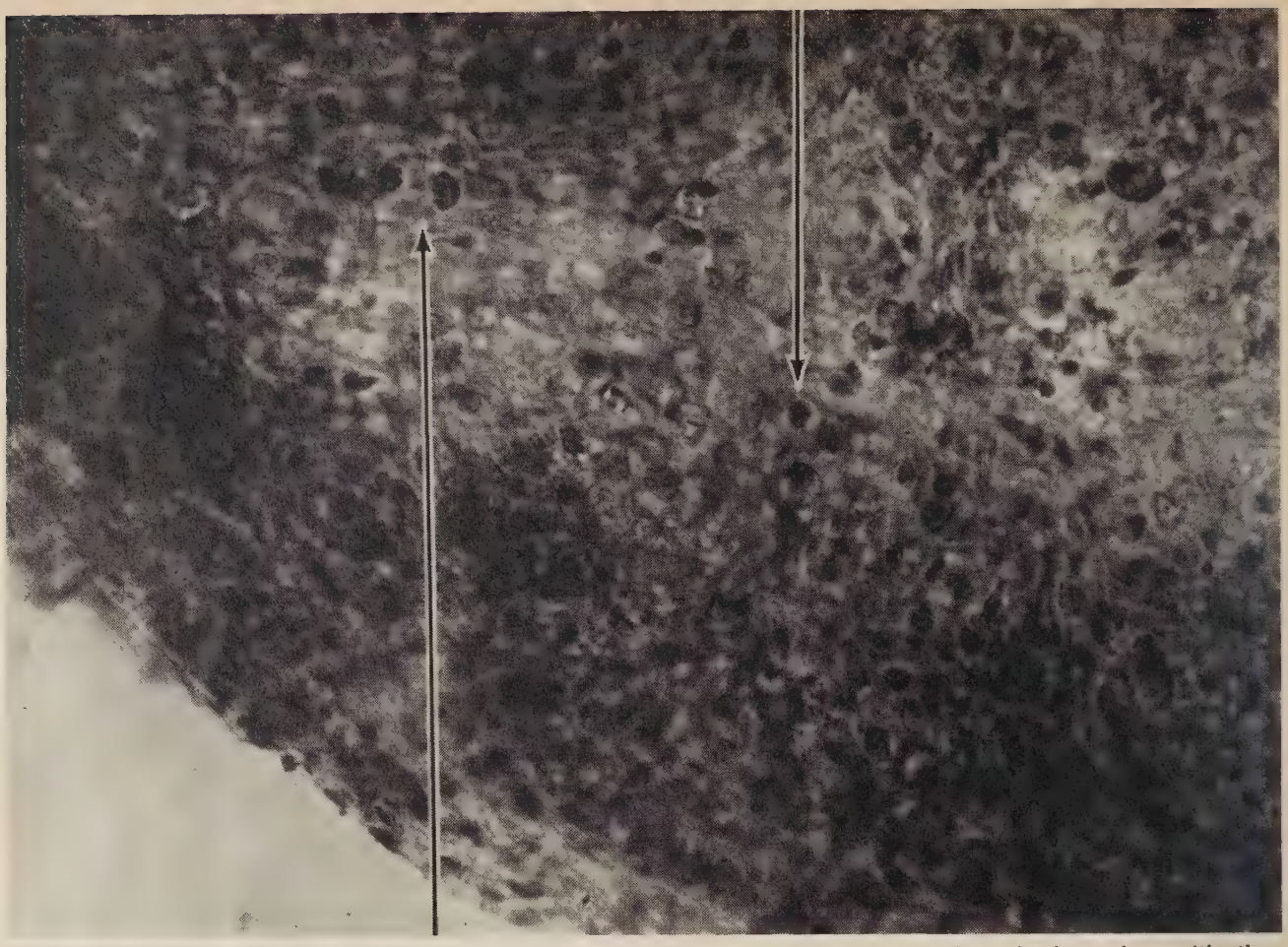

Fig 7 Photomicrograph of the cellular outgrowth (arrows) from the rabbit callus explant six days after cultivation. These cells show no osteogenic differentiation or bone matrix formation. Methylene blue, x 40.

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# Reconstruction of a mandibular defect with a homogeneous bone graft: Report of case

**V. M. Khosla, FDS RCS (Edin), LDS RCS**
**San Francisco**

*Homogeneous bone grafts are means of repairing deformity or gaps in mandibular architecture. If complications develop after management of mandibular fracture, homogeneous bone grafts may offer a solution. The following report shows how such a graft was used to circumvent non-union and sequestration after earlier unsuccessful treatment of jaw fracture.*

*Les greffes osseuses homogènes permettent de réparer les difformités ou les brèches de l'architecture mandibulaire. Si des complications apparaissent à la suite du traitement d'une fracture de la mandibule, les greffes osseuses homogènes peuvent y remédier. Le présent rapport illustre l'utilisation d'une telle greffe lorsque la soudure des os n'a pas réussi et l'échec d'un traitement précédent entraîne la formation d'un séquestre.*

Heterogeneous, autogenous and homogeneous bone grafts have been used to obliterate small and large gap defects, restore contour and re-establish function in an injured bone. In oral surgery, bone grafts or chips are used principally to correct complications of trauma and facial deformities. Currently, autogenous bone grafts are gaining popularity in the management of fracture complications.

The present case illustrates the successful use of a homogeneous bone graft. It served to correct a gap in the mandible which resulted from chronic postoperative infection and helped to restore the continuity of the bone.

## Case report

Mrs. G. Y., a 49 year old woman, first came to the emergency department of San Francisco General Hospital in April 1963. She had stumbled and fallen five days earlier while climbing the stairs. An extensive swelling, 3 x 3 cm, extended over the traumatized area and below the mandible. It was tender to palpation with peripheral induration and a soft central area, indicating early abscess formation. As a result of trauma to the left side of her face and jaw, she had sustained a fracture of the left body of the mandible just anterior to the first molar tooth. Radiographs confirmed the clinical findings.

We made an external incision 1 cm below the inferior border of the mandible. After dissection of the overlying soft tissues the fracture site was exposed, the fracture reduced and held in position with interosseous wiring. Subcutaneous tissues were closed with 4.0 catgut sutures and skin with 6.0 Dermalon. The postoperative course was uneventful.

Two months later the result appeared clinically acceptable, but radiographs showed advancing resorption at the line of fracture between the anterior and posterior mandibular fragments. An altered density within this area suggested a probable sequestrum (Fig 1).

One day in September 1963 the patient developed a swelling over the fracture site which spread circumferentially by the following morning, obliterating the lower border of the mandible. There was tenderness on palpation. Penicillin controlled the infection and the symptoms subsided except for some pain at night and slight impairment of chewing on the left side. Radiographs at this time disclosed a sequestrum. The patient refused further treatment.

On January 31, 1964 she was again seen in the emergency room of San Francisco General Hospital, complaining of sharp and constant pain, dizziness and malaise. Hot saline mouth washes and analgesics had given slight relief, but the pain had nevertheless kept her awake all night for two nights.

Physical examination revealed a large indurated non-fluctuant, hard and painful swelling, extending above and well below the lower border of the left mandible. There was partial trismus and lymphadenopathy. A fistulous tract, not actively draining, was present over the fracture site. Inside the mouth, the mucosa over the fractured site appeared red and cystic. The oral hygiene was poor and occlusion was non-existent.

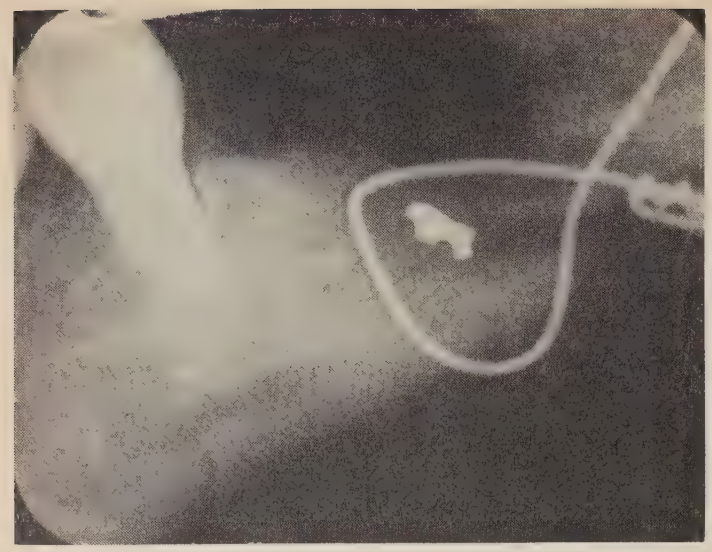

Fig 1 Radiograph of the left body of the mandible shows rarefaction of bone and signs of possible sequestrum formation at the site of interosseous wiring of fracture (June 1963).

The patient's temperature was elevated to 101.9°F. Her pulse rate was 80; haemoglobin was 12.3 Gm; and the white blood cell count was 9,900, with normal reticulocytes.

The clinical impression was that of cellulitis secondary to infection and resulting in non-union of the previously treated fracture. The infection had become chronic since the previous acute exacerbation in September 1963.

Radiographs showed bone destruction and non-union in the area of the previously treated fracture (Fig 2).

We admitted the patient and gave her 600,000 units of procaine penicillin every eight hours and 500 mg of streptomycin every 12 hours, both intramuscularly. Polyvitamin therapy and a high protein diet were also prescribed. The streptomycin was discontinued on the fifth day.

Nine days after admission we extracted the second left bicuspid under endotracheal anaesthesia. Erich arch bars were secured to the remaining upper and lower teeth. A prefabricated acrylic splint was then interposed between the maxillary and mandibular teeth and secured with 24 gauge intermaxillary ligation.

An old fistula from a previous cellulitis was then explored with a haemostat and the small head of a dental drill, apparently fractured and lost in the soft tissues during earlier surgery, was removed. The edges of the fistula were debrided, freshened and closed with interrupted silk sutures.

Next, we excised the scar from the previous operation by an elliptical incision extending from the left angle of the mandible to approximately 1.5 cm beyond the antigonial notch. The total length of the incision was approximately 5.5 cm.

Dividing the subcutaneous tissue and the platysma, we exposed the investing fascia of the neck. The cicatricial tissue was severed by scissor dissection and the external maxillary vein and artery were identified, isolated and tied.

Following division and elevation of the mucoperiosteum, the fracture site was exposed revealing fibrous union between the fractured fragments. The 24 gauge wire holding the two fragments was cut and removed. The anterior and posterior mandibular sections were freshened with rongeurs and curettes until fresh healthy bleeding margins appeared. The resulting defect was approximately 5 mm wide.

A Vitallium plate was then contoured to fit the buccal surface of the mandible and secured with four Vitallium screws. With a bone bur, we cut a step approximately 1 cm long and 5 mm deep in each fragment. This created a recess for accommodation of a homogeneous bone graft constructed from a piece of freeze-dried iliac bone. This T-shaped graft was then inserted in an inlay-onlay manner, with the stem of the T interposed between the anterior and posterior fragments of the mandible. The graft was secured by a chromic catgut suture wrapped circumferentially around graft and plate. It appeared stable. The wound was irrigated with antibiotic solution and closed in layers.

The incision was covered with Xeroform gauze, followed by a pressure dressing. The polyvitamin therapy and high protein diet were continued postoperatively.

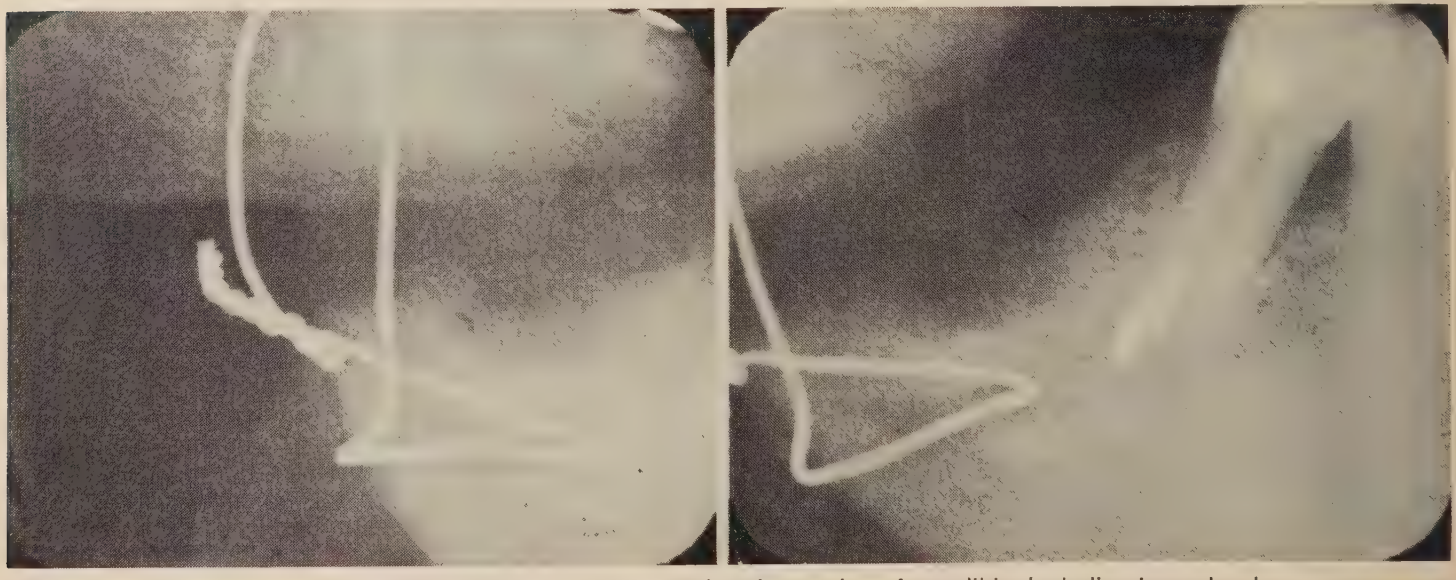

Fig 2 Radiographs taken on January 31, 1964, show progressive destruction of mandible, including lower border.

Fig 3 Panoramic radiograph of the mandible taken on April 30, 1969, shows result of the homogeneous bone graft. Note uniformity of the bone architecture and continuity of the lower margin of mandible.

The patient's recovery was uneventful and she was discharged from the hospital on February 24, 1964. She has remained under observation and, when seen last on April 30, 1969, her progress was satisfactory. Radiographs taken that day showed a well healed surgical site, with normal bone pattern. The Vitallium plate was in good position with no signs of resorption around the Vitallium screws (Fig 3, 4). Intra-oral opening was within normal limits.


**Summary**

A report illustrating the successful use of a homogeneous bone graft is presented. The graft was used to correct non-union and sequestration following earlier unsuccessful treatment of a mandibular fracture.



The author expresses appreciation to Doctor M. Wishan, oral surgery resident, and Doctor J. Conley, intern, at San Francisco General Hospital for assisting with this case; also to Doctor Raymond Huebsch, of the University of California Medical Centre, San Francisco, for advice in treatment planning.



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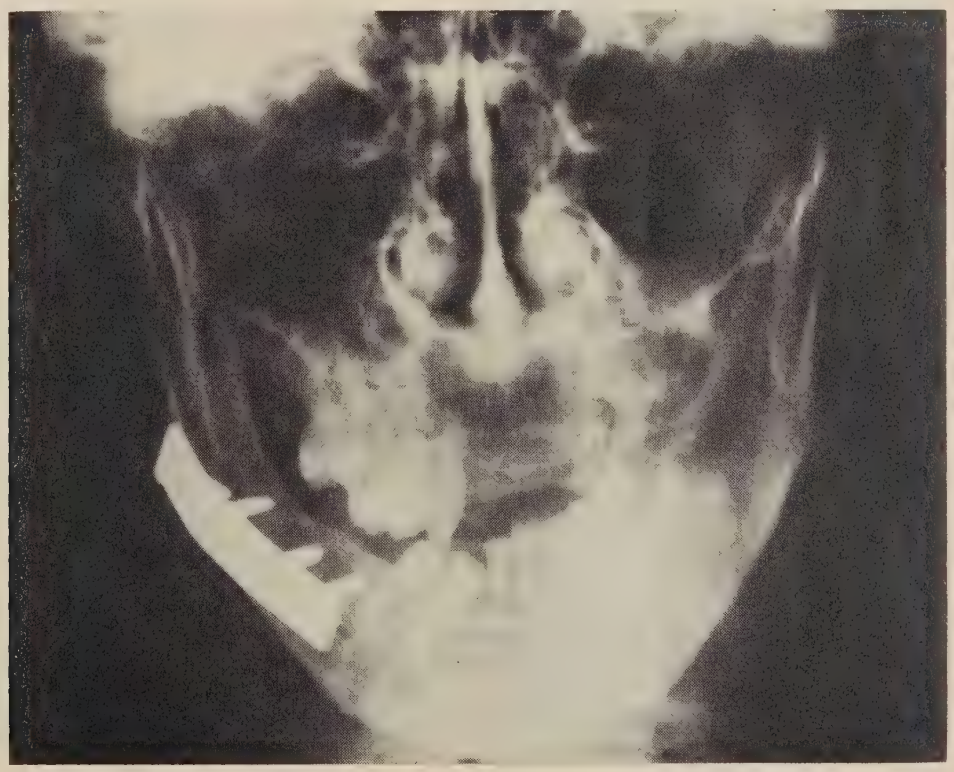

Fig 4 Postero-anterior radiograph of the mandible taken on April 30, 1969. The architecture of mandibular bone medial to the bone plate is uniform.

# An aesthetic clasp for acrylic partial dentures

**S. Vasic**
**I. Vucovic**
**C. Ognjanovic**
**Nis, Yugoslavia**

Nine out of 10 partial dentures made in Yugoslavia are of the acrylic type. The main retention for these tissue borne appliances is the circumferential clasp. Aesthetic results with these clasps are often unsatisfactory. To remedy this failure, the authors designed clasps which provide adequate retention without creating an unsightly appearance. Used in pairs, they are designed to exert force toward each other at opposite surfaces of the abutment teeth, thus eliminating possible orthodontic effects.

The abutment teeth are selected and a cast crown is fabricated in the usual fashion (Fig 1). During the wax-up stage, a small ledge approximately 0.6-0.7 mm wide is carved on the mesial and distal surfaces of the tooth so that the clasp wire can lie on it without overhanging and impeding the set-up of the remaining teeth.

The finished crown is tried in, the occlusion and articulation are checked and the crown is cemented. Further impressions are taken together with bite registrations and the casts are mounted on the articulator. At this point the clasps are bent. There are three types:

Fig 1 Crown on abutment tooth has small ledges on the mesial and distal surfaces, to accommodate the clasp wire.

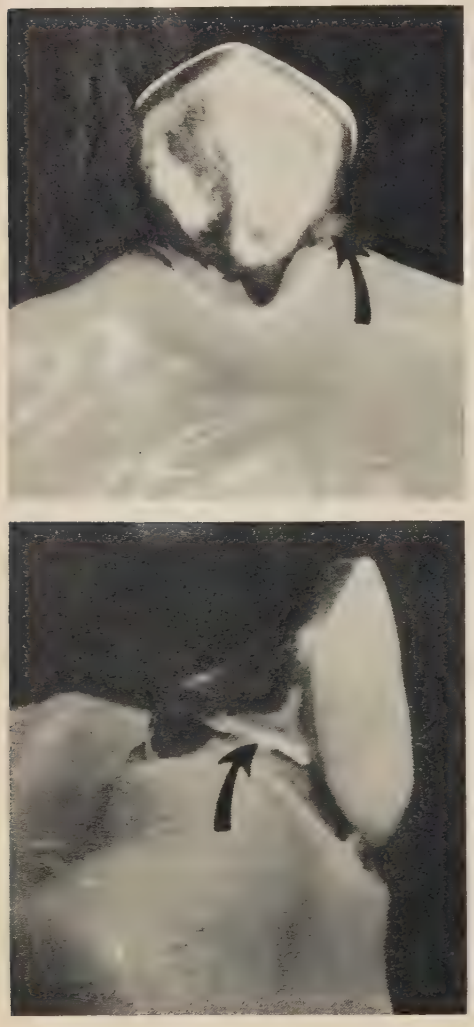

Fig 2 Partial upper denture with type 1 clasps.

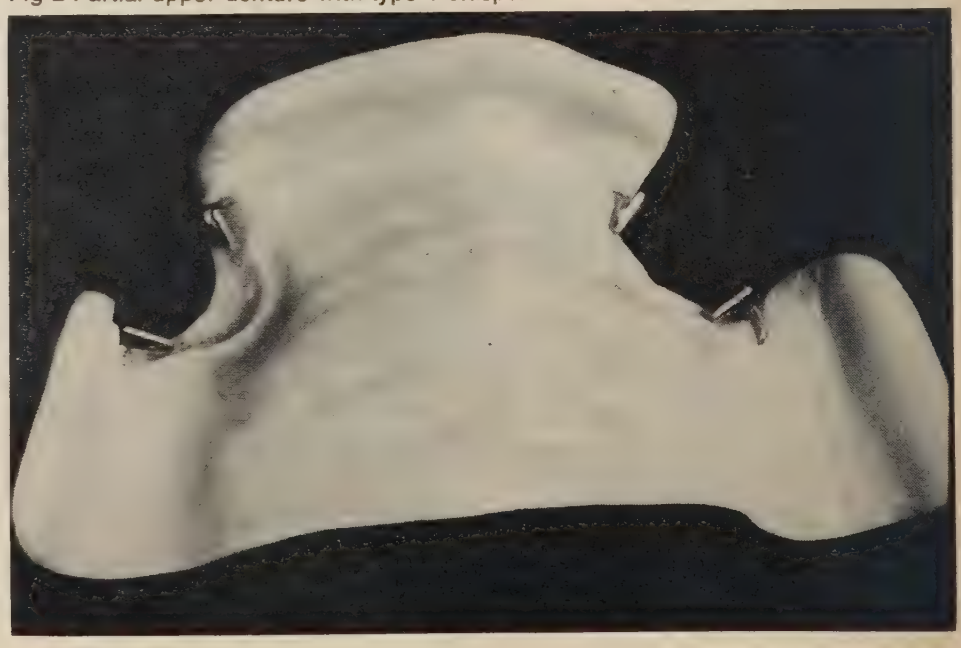

Fig 3 Type 1 triangular clasp.

Fig 4 Type 2 double wire clasp.

Fig 5 Type 2 single wire clasp.

Fig 6 Type 3 double loop clasp.

*Type 1*—This is a triangular clasp which has a horizontal part resting on the prepared ledge on one or both of the interproximal surfaces. The clasp wire rises parallel to the lingual surface to a level just short of the contact point, then turns axially to cross the part resting on the ledge, and finally bends to become imbedded in the saddle (Fig 2, 3).

This configuration transfers some of the occlusal stresses from the gingiva to the tooth and provides simultaneous retention. The horizontal part of the clasp is used to transfer the intermittent occlusal stresses of mastication to the tooth; the rest of the clasp, up to the point where it is imbedded in the acrylic resin, provides retention. This type of clasp is used in anterior teeth.

*Type 2*—This clasp consists of either a double wire 0.5 mm in diameter or a single wire 0.6-0.7 mm in diameter (Fig 4, 5). Both variations are less flexible than the type 1 clasp. This clasp is used in cases where another tooth is adjacent to the abutment tooth, precluding the construction of a type 1 clasp on the interproximal surface. Both type 2 variants serve to transmit occlusal forces but their retentive qualities are inferior to those of the first type.

*Type 3*—This clasp is in the form of a double loop and is used on bicuspids. The horizontal section serves the same purpose as in type 1. The double loop enhances retention (Fig 6).

Using this method of retention 28 acrylic partial dentures were made for patients attending the dental clinic at the Faculty of Stomatology in Nis. These cases were followed for a period of one year.

The authors concluded that the occlusal and functional equilibrium was restored. Because of the flexible attachment of the partial denture to the abutment teeth the masticatory forces were evenly distributed between the mucosa, alveolar bone and the remaining teeth. Aesthetic requirements were satisfied, eliminating the patients' aversion to partial dentures. The technique is simple and therefore adaptable for widespread use.

The authors acknowledge the assistance of Doctor Milan Somborac, Collingwood, Ont, in the preparation of this article.

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## Book Reviews

### Essentials of Histology

*Gerrit Bevelander. Ed 6. St. Louis, The C. V. Mosby Company, 1970. 328 p. Illus. $9.65*

As this is the sixth edition since 1945, one assumes that previous versions of this book were in demand and that its merits are readily apparent. Unfortunately, this is not the case. The photomicrographs and electromicrographs are surprisingly poor, considering the reputation of the author and the publisher. In Figures 5.1 and 5.15 it is almost impossible to discern nuclei in the cells concerned with formation and remodelling of bone. Figure 13.7 is out of focus. Unhappily, the majority of the illustrations suffer from similar defects.

Students rely heavily on pictorial information when they begin the study of histology. On this score alone Bevelander's illustrations deserve strong criticism. Why, therefore, has his book survived to a sixth edition? The answer lies in the text which was written to aid students to master the subject with a minimum of time and effort. The author has succeeded in this respect. Succinct, yet easy to read, the book gives adequate coverage but contains only basic information. In a work dealing with essentials, this is commendable. It is a pity, however, that additional reading is not listed at the end of each chapter.

Surprising, too, in view of the author's acknowledged status as an authority on the subject, are the several descriptive errors about dental tissue histology. For example, enamel formation is alleged to result from conversion of ameloblasts, whereas this has actually been recognized as a secretory phenomenon for over 10 years. The organic component of enamel is incorrectly designated as keratin. There is also misleading reference to Tomes "fibrils" in dentine; these odontoblastic processes are not fibres in the histological use of the term.

Despite the otherwise clear and concise text, the book is still unsuitable for teaching because of its inadequate illustrations. Students have an ample choice of available histology textbooks and the quality of the illustrations should rightly influence the proper selection.

*A. R. Ten Cate*

### Advances in Oral Biology

*P. H. Staple, ed. Vol 4. New York and London, Academic Press, 1970. 396 p. Illus. $19.50*

This book is the fourth in a series which have appeared at two to three year intervals during the last 10 years. The present volume contains 10 chapters and it was the intention of the editor that these should appeal to both the academic and general dentist.

The review of greatest practical application to the general dentist may be the one by Baume and Fiore-Donno on the effects of corticosteroids on dental pulp. The general conclusion reached is that most of the results are, on balance, unfavourable.

Weiss and Neider have written a truly outstanding review of biophysical approaches to epithelial cell interactions with teeth. This article will appeal to all clinicians interested in the biology of the gingival crevice and it elucidates many of the purely semantic problems associated with concepts about the epithelial attachment and epithelial cuff. For this article alone, the book is good value.

Kleinberg, discussing the biochemistry of the dental plaque, has taken the approach that to understand its role in caries and periodontal disease plaque must be considered as a tissue. Since much research on caries and periodontal disease at the present time is restricted to studies of isolated specific organisms from plaque, the great merit of this chapter is its emphasis on the complex interrelations between the different micro-organisms in plaque and some of the parameters which control plaque metabolism.

Bergman and Anneroth, in an interesting chapter on microradiography of oral tissues, describe some of the problems of quantitative measurements. The theoretical background is adequately covered, as are also some of the applications to hard and soft tissue pathology with special emphasis on dental caries.

The remaining six chapters are somewhat less detailed than those mentioned above and, to my mind, less valuable.

Savara, in a very short and rather superficial review, deals with the use of computer techniques in the study of growth. The high-speed calculations possible with modern computers have facilitated statistical analyses and also the calculation of correction factors for some of the distortions present in cephalograms.

Newesely discusses the factors controlling apatite crystallization with particular reference to the effect of fluoride and its accompanying ions. He considers that fluoride exerts its main effect in protecting the teeth against caries by facilitating the transformation of octacalcium phosphate to apatite. This view may be overstated because it does not account for all the effects of fluoride.

Knox writes about the antigens of oral bacteria and how these can facilitate the indentification and classification of oral bacteria. More discussion on the immunological response to these antigens would have been of interest.

Mitchell describes the central nervous system responses to tooth pulp stimulation and their modification by drugs. He emphasizes that pain is a state of mind rather than a specific modality; hence, one cannot be certain that electrical disturbances in the CNS of an animal have anything to do with the sensation of pain.

Skougaard reviews cell renewal with special reference to the gingival epithelium. The different techniques available are ably discussed and evaluated.

Finally, Gerson and Meyer discuss biochemical assays of heterogeneous soft tissues of the oral cavity. The aim of this type of work is to determine the proportional contributions to organ metabolism of individual organ components.

On the whole, the topics covered are areas in which many advances have been made and the book should be of value to all academic dentists and practitioners interested in keeping up with the scientific background to their profession. Doctor Staple deserves congratulations for his efforts over the last 10 years.

*Colin Dawes*

### Endodontic Practice

*L. I. Grossman. Ed 7. Philadelphia, Lea & Febiger, 1970. (Available from The Macmillan Company of Canada Limited, Toronto) 483 p. Illus. $14.25*

Endodontic practice has expanded and changed considerably during the past five years, stimulated by its acceptance as a specialty by the American Dental Association and its establishment as a separate graduate department in most American dental schools. However, this latest edition of Doctor Grossman's text reflects little of that change. Fortunately, these shortcomings relate not so much to the areas covered as to the depth and manner in which they are consider-

ed. Two chapters which exemplify this most noticeably are those dealing with diseases of the pulp and periapical tissues and dental transplantation and implantation. In the former, Doctor Grossman tries to rationalize the retention of past concepts; but new and significant findings related to pain, pulpal and periapical disease and inflammation fail to justify this position. Likewise, the section on dental transplantation and implantation is too short and too superficial in view of the interest and attention accorded implants, transplants and replants over the past five years.

The book shows some change from the preceding edition. Slight expansions have been made in the chapters dealing with pulp capping, pulpotomy, root canal anatomy, biomechanical preparation of the root canal space, antibiotics, hemisection and radisectomy and root canal obturation. "Obturation," whether semantically correct or not, has now been substituted for the word filling, which appeared in all previous editions.

The chapter on obturation has three new sections dealing with the vertical condensation technique, a silver cone technique and a precision filling technique. Short new sections on corticosteroid therapy in endodontics and formocresol pulpotomies for primary teeth also appear as new additions to this seventh edition. The author has deleted other sections on the use of arsenic, paraformaldehyde and diathermy for destroying the pulp and the use of strong alkalis as an aid in enlarging root canals.

Despite all of its shortcomings, Doctor Grossman's text is still required reading for anyone with endodontic interests. Over the years it has been in more dental libraries than any other textbook in its field, and this latest edition will very likely continue this tradition. It is certainly a tribute to the man whose years of work and dedication have made his name internationally synonymous with endodontic practice.

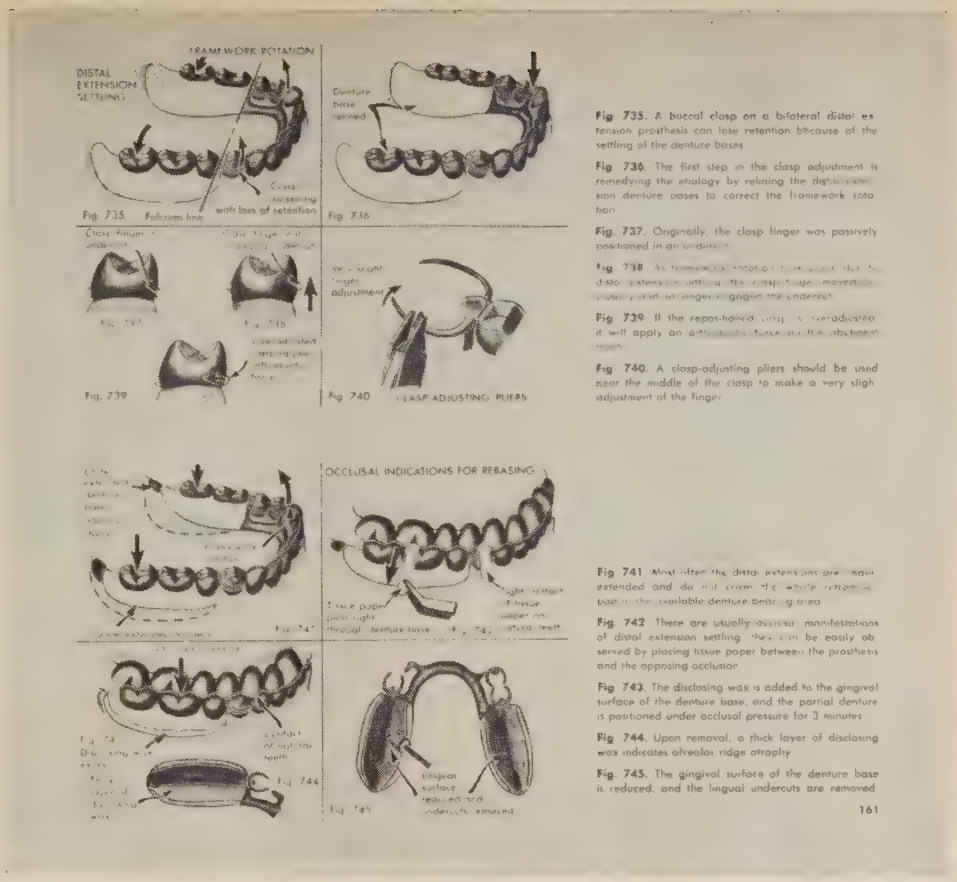
*C. D. Torneck*

## Atlas of Removable Partial Denture Prosthodontics

*L. A. Weinberg. St. Louis, The C. V. Mosby Company, 1969. 255 p. Illus. $32.45*

From the opening chapter, one cannot help being impressed by the author's complete command of the subject and his ability to convey his instruction clearly and concisely. The wealth of information that is presented in little more than half of the 255 pages is truly amazing.

The format of the book is excellent. Without fanfare or unnecessary verbosity, the reader is plunged into the first stages of the procedures, beginning with diagnosis and treatment planning, and carried through the preliminary steps to a short treatise on the principles of surveying and clasp design. It is encouraging to note the emphasis on the use of mounted diagnostic and planning casts and on the correct establishment of the occlusal plane and harmony between centric relation and centric occlusion.



"Atlas of Removable Partial Denture Prosthodontics."

In the latter two-thirds of the book one is instructed in the clinical procedures and techniques. Included is a chapter on porcelain-fused-to-metal abutment designs and a chapter on splinting. Concluding this excellent book is a chapter on internal attachments.

Augmenting the written text are nearly 1,200 illustrative drawings that are pertinent and uncluttered with extraneous detail. Most of the drawings are on the right hand page facing the text that is being exemplified, thus avoiding unnecessary turning of the pages. One rather novel and useful addition is a summary at the end of each of the 17 chapters, a feature not commonly found in textbooks.

It is obvious that this book was written with the needs of the general dental practitioner in mind, and to him this volume should prove most valuable. One might question the value of this atlas as a textbook for undergraduate students but graduate and postgraduate students should find it useful and stimulating.

Doctor Weinberg deserves congratulations and the highest commendation for his scholarly contribution to dental literature.

*K. M. Kerr*

## Orthodontic Treatment for the Adult

*W. J. Tulley and B. S. Cryer. Bristol, John Wright & Sons Ltd, 1969. (Available from The Macmillan Company of Canada Ltd, Toronto) 51 p. Illus. $2.25*

The authors of this practical text are well known and highly respected for their contributions to the dental literature. In the introductory chapter they clearly define the types of adult cases which are amenable to simple orthodontic procedures. The second chapter describes a method of diagnosis which does not require the use of lateral skull radiographs for the appraisal of the facial skeleton.

More than 60 per cent of the booklet is devoted to treatment. One-third of this percentage is devoted to effective methods for the correction of local factors such as spacing, crowding, and un-

erupted and impacted teeth. The other two-thirds pertain to treament of Class II and Class III problems. The use of removable appliances is stressed. The many illustrations are clear and self-explanatory.

Dentists interested in performing local tooth movements as an adjunct to restorative and prosthetic treatment will find this little handbook particularly valuable.

*R. O. Fisk*

### The Epidemiology of Oral Health

*W. J. Pelton, J. B. Dunbar, R. S. McMillan, P. Moller and A. E. Wolff. Cambridge, Harvard University Press, 1969. 167 p. $5.00*

This publication originated from a request by the Statistics Section of the American Public Health Association which suggested the topics and the contributors. The authors have responded with a comprehensive monograph on dental disorders. Each writer has concentrated on a particular dental condition, with special emphasis on the epidemiological and statistical aspects of the problem. Sections on caries, periodontal disease, oral cancer and dentofacial deformities–specifically malocclusion and cleft lip and palate–describe the nature of these disorders and the statistics measuring their extent and severity.

The authors are well chosen in terms of their qualifications and research experience. Each has adequately reviewed the literature and research in his particular subject area. Each section is supported by references as well as a supplementary bibliography listing papers reviewed and thought to be of interest but not actually cited. The text is clear and concise, and the data are supported by meaningful tables, charts and graphs. Each section concludes with an excellent summary.

This timely publication meets a real need in the field of dental epidemiology. Not only does it establish a necessary baseline of present epidemiological data; it also calls for additional "workable" dental indices, particularly for malocclusions, which can gain the world-wide acceptance accorded to the DMF count and Russell's periodontal index.

As the first text exclusively devoted to the epidemiology of oral health, this book is certainly a worthwhile addition to the "required book list" of undergraduate dental and medical students as well as other students, teachers and professionals frequently in contact with oral health problems.

*J. G. Blackmer*

## Additions to the Library

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# The professions and the French language

*Quebec's Bill 64 requires that future applicants to the professions have a working knowledge of French. Herewith an English translation of the French editorial on page 44 which comments on the significance of this measure.*

Quebec's National Assembly has adopted new legislation which affects immigrants seeking admission to various professions in that province. Embedded in Bill 64 are two important provisions which merit further consideration.

The new law removes the requirement that a person must have Canadian citizenship before being admitted to the study and practice of 19 professions. Candidates must nevertheless signify their intention to apply for citizenship within the minimum legal delay. Because professional competence is more important than nationality, the College of Dental Surgeons of the Province of Quebec had previously withdrawn the citizenship requirement from its own regulations, thereby manifesting the profession's leadership in this important domain.

Bill 64 also requires future immigrants to have a working knowledge of French. Predominantly francophone Quebec naturally likes to attract professionals who can serve all of its residents rather than just the English-speaking segment as has so often happened in the past.

But the new language requirement should be viewed dispassionately. We must not surround ourselves with another Great Wall of China. Professional standards and manpower requirements, the principles which justified removal of the citizenship requirement, apply with equal force to the language stipulation.

The new bill, while protecting the acquired rights of persons already admitted to practice, is aimed principally at newcomers from abroad. But too rigid enforcement of its regulations is likely to discourage some badly needed specialists from coming here. Worse still, it could put new disciplines entirely beyond the province's reach. Take dental hygienists, for example. Quebec doesn't train any, and probably won't for some years to come. For the time being, we have managed to attract a few hygienists from outside the province. Most of these young ladies are anglophone. But surely it is better to have some English-speaking hygienists than none at all!

Once he settles in a French milieu, a professional is likely to seek a working knowledge of French of his own accord—especially if he deals directly with the public. After all, no reasonable practitioner would want to isolate himself from 80 per cent of his potential clientele.

We must not permit emotion to cloud the issue. Language cannot be legislated without stirring deep resentment. But reasonable solutions can always be found when logic and practical considerations are allowed to prevail.

# Another dental care plan

Premier Robert Bourassa's declared intention to extend his province's medical insurance scheme to cover the cost of dental care for children up to age seven has the suspicious look of another hasty decision.

It came after months of bitter bargaining with medical specialists — negotiations that finally culminated in agreement which, according to the government, could escalate projected costs of the plan by $20 million a year.

Mr. Bourassa has now told the Quebec National Assembly that dental care insurance "should come into effect early in 1971." Yet no one knows how, when or by whom the service is to be provided.

Perhaps the premier's statement was deliberately vague on this score in order to allow his government and the dentists some leeway in the ensuing negotiations. But whatever the reason, Mr. Bourassa is presumably a realist who knows that a proposal to deliver health care must have broad support from the providers. To gain this support, his plan will have to spell out to the providers' satisfaction answers to the questions of coverage, remuneration, professional control and optional participation or non-participation.

It would be wise for the Quebec government to consult the dentists without delay to try and win as broad a base for support as it can.

# Les professions et le français

L'Assemblée nationale du Québec a récemment accepté le projet de loi 64 qui régira les conditions d'exercice de diverses professions pour les immigrants. Deux modifications importantes méritent d'être analysées.

Il ne sera plus nécessaire d'être citoyen canadien pour être admis à l'étude et à la pratique des 19 professions visées par la nouvelle loi. Le candidat devra néanmoins indiquer qu'il a l'intention de demander cette citoyenneté dans les délais légaux minima. Depuis plusieurs années, le Collège des Chirurgiens-Dentistes de la Province de Québec avait déjà modifié ses règlements et ne réclamait pas la citoyenneté canadienne. Le Collège a reconnu de bonne heure que ce sont les normes de pratique de la profession qui comptent et non la nationalité du dentiste en question. Notre profession a donc mené le pas dans ce domaine.

La deuxième condition que le nouveau projet de loi pose exige que le candidat devra démontrer une connaissance d'usage de la langue française. Il est naturellement normal que le Québec, à forte majorité francophone, préfère obtenir des professionnels qui pourront desservir toute sa population et non se diriger exclusivement vers le groupe anglophone comme il en a généralement été le cas dans le passé.

C'est dans ce domaine que nous devons éviter l'émotivité. Il faut prendre garde d'élever autour de nous une nouvelle muraille de Chine. Les mêmes principes qui ont guidé l'élimination de la nécessité de la citoyenneté canadienne devraient nous servir ici aussi: (1) les normes professionnelles et (2) le personnel nécessaire.

La nouvelle loi respecte bien les droits acquis et ne s'applique qu'aux professionnels qui viennent de l'extérieur du Canada. Mais une application rigide des règlements pourrait empêcher la venue de certains spécialistes dont la province aurait besoin, ou elle pourrait interdire l'importation de nouvelles disciplines. Prenons l'exemple des hygiénistes dentaires. Le Québec n'en forme pas encore et ne sera probablement pas capable de le faire avant plusieurs années. Entretemps, nous avons pu faire venir un petit nombre d'hygiénistes dentaires qui sont originaires du dehors du Québec. Elles sont presqu'exclusivement anglophones. Il faut se rendre à l'évidence qu'il est préférable pour le bien-être de la population d'avoir des hygiénistes dentaires anglophones que de ne pas en avoir du tout!

Une fois installés dans un milieu francophone, il est néanmoins normal que ces professionnels cherchent à acquérir une connaissance d'usage du français surtout si ils ont des contacts directs avec le public. Il est quand même illogique pour un praticien de vouloir s'isoler de 80 pour cent de la population.

Evitons d'être émotifs. On ne peut pas légiférer une langue sans créer une résistance profonde. La logique et le pragmatisme mèneront éventuellement à une solution équitable pour tous.

**Extraits du Code d'Ethique de l'ADC**

*Service au public*

1. Le dentiste a comme premier devoir de servir le public.

2. Il doit exercer sa profession avec toute l'habileté et toutes les connaissances dont il est capable.

3. Il ne doit jamais exercer dans des conditions qui puissent nuire à la qualité des soins qu'il donne.

4. Il est dans l'obligation de toujours se perfectionner en renouvelant constamment son instruction théorique et clinique conformément aux normes de la dentisterie moderne.

5. Il doit aimablement mais fermement insister pour ne faire que ce que ses connaissances professionnelles lui dictent dans le meilleur intérêt de la santé de son patient.

*Consultations*

1. Le dentiste doit lorsque cela est nécessaire dans l'intérêt de son patient ou lorsque le patient ou sa famille le demande, recourir à une consultation avec un autre dentiste.

2. Le dentiste traitant et le consultant doivent éviter de se nuire mutuellement même s'il y a divergence d'opinion.

3. Le dentiste consultant n'entreprendra aucun traitement sans le consentement du dentiste traitant.

4. En cas de désaccord sur le traitement préconisé et si le patient accepte le traitement du dentiste consultant, le dentiste traitant peut dégager sa responsabilité et cesser ses soins.

# Letters/Courrier

*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association Dentaire Canadienne. Vous êtes invités à participer à cette section du Journal.*

**Anticariogenic adhesives**

Your editorial, "Progress with Anticariogenic Adhesives" (December 1970), is the first recognition for protective dentistry I have seen in a dental journal. I hope the CDA will give the same support and publicty–through your Journal –to the principles of protective dentistry as it has given to fluoride therapy.

Mechanical methods used in restorative dentistry are obsolete; yet the profession is still unprepared for the miracles of technology now available to dental research.

We try to give more dental treatment with the same drugs, anaesthetics and mechanical techniques that were used decades ago.

We now accept the idea of dental auxiliaries assisting in this mechanical work. And if governments legislate universal dental treatment, we will be forced to use these robots; otherwise mechanical dentistry will never be able to serve more than the 35 per cent of our population who have the money to pay for our services.

This attitude must change. I therefore suggest that the CDA request the Science Council of Canada to start a five year research program. Intensive study by the Council's most highly qualified research chemists, biologists, physicists and dentists would lead to the discovery of a conclusive protective substance for the prevention of dental caries. In my view, testing and evaluation need not exceed five years.

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*Medicine Hat, Alta*

**Association dues and licensure**

It must be comforting and encouraging to your readers to realize that they have an editor with such a fine sense of humour that he will choose for publication in our national journal such a comic article as that of J. G. Cook in the December issue.

One aspect of the professions that is under attack by social reformers is the control and supervision of applicants to practice. Commissions and reports indicate that these responsibilities should be redirected elsewhere. But dentistry values this control as one of the essential qualities of a profession, and we are proud of the job we do in screening applicants. Therefore I cannot subscribe to Doctor Cook's proposal for a Canada-wide federal dental licensing board.

Incidentally, why doesn't he begin with an Atlantic board embracing four geographically and economically related areas? This would be far easier than establishing a federal board.

I must also reiterate that health falls under provincial jurisdiction. Provincial governments deal with provincial licensing boards who are governed by provincial dental acts that regulate the practice of dentistry in each province. Consequently, I cannot accept a proposal for introducing the Canadian Dental Association into areas that lie entirely beyond its capabilities and are contrary to its federal charter and constitution. And I object to such interference in the affairs of provinces that are trying to do their duty.

As to CDA financing, the immediate answer is a combination of corporate grants and individual membership fees.

Provincial governments would not wish to destroy a useful organization like the CDA. They would allow the provincial licensing boards to continue their support of the CDA, though on a reduced scale related to CDA functions that are useful to the licensing boards.

Individual membership fees would simply pay for individual services. They could be readily adjusted each year without the bitter wrangling that went on in the past, trying to maintain an untenable position, a position which has now been drawn into the open by the report of various commissions in Ontario and Quebec.

Send me a bill; I will pay. And I have more confidence in my confrères than most former CDA officials who turned a deaf ear to this suggestion when I made it in Quebec in 1965.

*G. M. Dundass, DDS*
*624 3rd St SE*
*Westmount 6, Que*

**TMJ syndrome**

Temporomandibular joint function and the symptoms produced in varying degrees by a disturbance of joint function and tooth movement have become the most interesting and controversial subject in dentistry. Study of the TMJ phenomenon and its relation to mandibular movement has attracted the attention of workers in periodontics, prosthodontics, restorative dentistry and dental medicine, producing a flood of literature much of which is stated opinion and not always supported by statistical evidence. The whole field is still wide open for further study and statistically supported conclusions to determine acceptable theories of the relationship between TMJ function and mandibular movement.

Doctor Vincelli's article (November 1970 issue) makes a further contribution and states the conclusions he has reached from the completion of three cases treated under general anaesthesia which Doctor Vincelli, no doubt, does not intend to be statistically acceptable evidence of a successful recommended treatment.

Deep intravenous sedation, used by many workers in this field, may be safer than general anaesthesia for eliminating neuromuscular proprioception. General anaesthesia is now so widely used in dentistry and with such a low mortality rate that deep sedation, rather than general anaesthesia, may have no safety significance.

The cause of pain associated with the TMJ syndrome is still controversial. Many attribute it to muscle pain rather than joint inflammation. It is hard to believe that a patient suffering from "acute bilateral TMJ inflammation" can be anaesthetized or deeply sedated so that the inflamed joints function physiologically. Even a normal terminal hinge position is impossible to obtain until the inflammation subsides. But anaesthesia or sedation can relieve muscle pain, thereby achieving muscle relaxation. If the joint tissues are normal, they would then move normally, one upon the other.

It is equally difficult to accept the premise that the increased TMJ pain experienced by one patient when flying in an airplane "confirmed the original diagnosis of acute TMJ inflammation." If there is no atmospheric pressure in the joint, there is no reason to expect any effect from a change in altitude. More likely the patient tried to dissipate the increased emotional tension, generated by the unusual flying situation, by initiating muscular activity resulting in

tooth clenching with subsequent muscle spasm and increased TMJ pain.

Doctor Vincelli says that discrepant centric relation and centric occlusion are unphysiological. But many workers regard separate centric relation and centric occlusion as perfectly normal. A non-interfering anterior slide between these two positions is termed the "long centric." Many patients adjusted from an acquired centric occlusion to terminal centric relation are uncomfortable without utilizing their long centric slide. Certainly more statistical evidence is needed to support Doctor Vincelli's conclusion.

It seems reasonable that the temporomandibular joints would adapt to a malrelationship of the teeth until some pathological process or aging reduces the capacity for adaptation and either the supporting tissues break down or the TMJ syndrome occurs. This is certainly a factor to consider in preventive dentistry where occlusal examination and prophylactic correction deserve as much consideration as the prevention of caries and periodontal disease.

That occlusal correction under general anaesthesia should be attempted before abandoning the patient to radical joint surgery is a sound concept. All possible conservative treatment should be tried before subjecting the patient to an irreversible, crippling operation.

The presentation of three successfully treated cases does not "confirm the importance of hinge dominance and stability in mandibular physiology." Therefore, it would be advantageous to know how many cases have been treated in this manner and what percentage of failures was encountered.

The skeletal or mandibular stability concept of TMJ function and tooth relation is intriguing and will give the advocates of coincident centric relation and centric occlusion in the terminal hinge position and the advocates of the long centric something to "chew on."

Doctor Vincelli deserves congratulations for his work and the profession should look forward to further reports of the success he is achieving with his methods of treatment and confirmation of the hypotheses and opinions put forward in his article.

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Many thanks to Doctor MacDougall for his interesting comments on my paper.

Subjecting a patient to deep general anaesthesia for three hours is a very serious undertaking. There is no philosophical justification for using this vehicle in occlusal correction unless the dentist possesses sufficiently firm principles to achieve a probable successful result. Essential for this purpose is a conception of occlusion that is compatible with the basic biological laws of conservation of tissue, conservation of energy, and profound efficiency and maximum longevity. In order to satisfy these laws one must go beyond philosophy, empiricism and pragmatism. Sufficient knowledge is available today to take mandibular function beyond this sphere.

DiPietro's chapter on mandibular physiology in Kornfeld's text, which I cited in my paper, provides a mathematical explanation of the factors that produce and justify natural tooth form and arrangement. This chapter establishes a foundation of mathematics which, along with a knowledge of anatomy and physiology, places occlusion in a truly scientific position.

A personal episode with TMJ dysfunction has moulded my attitude toward teeth and jaws. Some years ago I also benefited from mouth reconstruction by Doctor V. O. Lucia, the author of *Modern Gnathological Concepts,* who also opened his office to me and my technician. After learning all I could, I progressed beyond fact to the hypothesis of complete or physiological TMJ function. This concept became firmly established and was successfully applied in over 400 cases treated prior to my first general anaesthesia patient. Confirmation was provided by my three subsequent case reports, which are the only ones on record using general anaesthesia. The pain which these patients suffered was so intense and constant as to preclude any other method of treatment.

I have now treated more than 800 cases–most of them by occlusal correction alone, others by occlusal correction supplemented by crowns, bridges and removable appliances. Twelve patients were treated under general anaesthesia. We made a motion picture in one case where general anaesthesia was utilized, and a second film of another patient treated by occlusal correction, using an anterior stop to stabilize and control mandibular function during the correction.

For reconstruction, I carve my own teeth. I believe that if a dentist can carve occlusal anatomy at a laboratory bench, he is more likely to be capable of carving it in the mouth during equilibration. This is far more important than one may think.

Some years ago three colleagues helped me to dissect and study a number of cadavers. By examining the tooth area we were able to predict conditions in the temporomandibular articulation. We filmed one of these dissections. We also have radiographic evidence from five cases showing condylar positioning with the teeth clenched before and after treatment. These results also contribute to my concepts.

I agree that muscle spasm is the most frequent source of TMJ pain. However, in the first two cases which I reported the joints were extremely tender to palpation. They remained tender for one week in the first case, and for two weeks postoperatively in the second case. There are no muscles in the joints; but the smallest amount of inflammatory exudate makes them excruciatingly painful. The synovial fluid in their wide but very thin spaces has a certain pressure. If you add even a minute quantity of inflammatory exudate, the ligaments must stretch or the periphery of the disc may become involved in the articulation. The effect in either event is pain. If you diminish the pressure outside the joint and further upset the balance, the result is more stretching and more pain. The amount of fluid increase may be insufficient to influence condylar positioning, yet still cause great pain. This is my explanation for the stable terminal hinge action which these cases displayed.

I have never seen evidence of a long centric slide on a natural unworn tooth. It has no place in my concept of normal TMJ anatomy, and the non-interfering anterior slide does not figure in my concept of physiological TMJ function.

Joints must be tight and capable of directing the movements induced by muscle force. The temporomandibular joints are the fulcrums of the gnathic organ. A horizontal slide in the tooth area would induce a corresponding horizontal slide in the fulcrums, thereby violating the law of profound efficiency.

Doctor MacDougall states that "many patients adjusted from an acquired centric occlusion to terminal centric relation are uncomfortable without utilizing their long centric slide." I contend that in all these instances the terminal centric relation was obviously not the terminal hinge relation, which is the only true physiological relationship of the condyles in the glenoid fossae when natural or artificial teeth stop jaw closure.

I agree with Doctor MacDougall that the literature is replete with stated opinion. And the problem does not end there. Our definitions are misleading and the terminology is inadequate and eroneous. Take, for instance, "masticatory system"–the term most often used in the literature. It is not a system but an organ composed of several systems. Moreover, "masticatory" implies that chewing is the sole function of teeth and jaws. Yet chewing occupies less than one hour per day, whereas teeth and jaws function as part of the skeletal system for 24 hours a day. "Gnathic organ" is therefore a more accurate designation.

Once we eliminate this kind of confusion over terminology, definitions and basic concepts, we can begin to resolve the bizarre symptoms of TMJ dysfunction and the manifestations of periodontal disease in which malfunction is always a major factor.

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# EXECUTIVE DIRECTOR'S PAGE

W. G. McIntosh, DDS

In this issue I have written the second half of the progress report on the Board of Governors' Winnipeg directives.

### Weekly dental columns

About 200 weekly newspapers across Canada now publish a dental column under the byline of the Canadian Dental Association, more than double the initial acceptance last spring. They cover major urban areas as well as remote locations, and are estimated to have a readership of well over 1.5 million. The Council on Public Health and Preventive Dentistry assumes responsibility for the subject material of the columns.

Dental columns in daily newspapers were also recommended to the Board by the Public Health Council during the Winnipeg meetings. Although the Board agreed in principle, the $2,000 estimated annual cost for the program was deleted from the 1971 budget due to a lack of funds. However, if unexpected revenue turns up or if expenditures are less than anticipated, the Executive Council will give high priority to this program of public information.

No such alterations are yet apparent, but the situation will be reviewed when the Executive Council meets again next month.

### Audio-visual cassette programs

Educational programs utilizing audio tape cassettes with a visual component are fast becoming a valuable tool in dentistry in the US. Available through subscription from the American Dental Association, these are programs directed at furthering the specialized education of the dentist and the more general knowledge of his patients. By having a patient in a waiting room educating himself with such a unit, the dentist's time is freed for other work.

The Board at Winnipeg had directed that Canadian access to these programs be further explored, including their legal, customs, sales tax and language implications. Federal clearance has now been obtained for the importation of at least one audio cassette program. Investigations are continuing with respect to this program as well as other similar programs and we hope to present more information and proposals to you shortly.

### Dental product standards

The CDA did not succeed in gaining representation on the dental committeee of the International Standards Association, because financial assistance wasn't available from the Canadian Standards Association.

The Board had directed us to approach the Canadian Standards Association for assistance and although the CSA was sympathetic, it said it is not yet in a position to provide the funds.

But the CDA intends to cooperate with the American Dental Association and international bodies to set up a service to help dentists select the best dental materials available.

In December I and Doctor Zack Kasloff, chairman of our Committee on Standards, met with the ADA's new Council on Dental Materials and Devices as a first step in co-ordinating our efforts.

The ADA's aim in inviting us was to explore setting up a service between countries which would detail development of standardization and evaluation of materials, equipment and instruments. A Canadian-US program might be the first phase. Hopefully, each country would accept the testing of the other.

The CDA Council on Research is pursuing the matter and its findings will be passed on to the Board. Canada has several qualified researchers in dental materials and a few Canadian dental schools now have testing laboratories.

Many CDA members have requested specification and certification programs in this area. Those interested in the meantime can order the fifth edition of the ADA's *Guide to Dental Materials and Devices* from the ADA order office, 211 E Chicago Ave, Chicago, Ill 60611.

### Administration study

A study of our headquarters administration by the Thorne Group management consulting firm is well under way. The study, at a cost not exceeding $2,000, will recommend the type and number of personnel needed to make CDA tick effectively and economically.

The Board approved the study because of the increasing workload being handled by the CDA. The report is expected shortly.

### Expense allowances

The Executive Council, responding to Board direction, has set a daily expense allowance for CDA members when attending functions on association business. The Board felt that such an allowance is more equitable and would result in more accurate budgeting.

The Council approved a $30-a-day allowance for those attending full-day meetings. It also approved that out-of-pocket expenses be reimbursed for local residents and those serving less than a full day.

*How should a dental association react if a government dental insurance plan (1) discourages dentists from opting out of the scheme by denying insurance benefits to their patients; (2) permits only limited opting out which allows a dentist to bill his patient directly and the patient to receive planned benefits, but prohibits the dentist from charging more than the government's predetermined payment for the service involved; or (3) authorizes a health insurance commission to decide whether services rendered to patients are dentally or medically necessary? These are issues which sparked last year's walkout by Quebec medical specialists. Doctor J. A. Guest of London and Doctor M. J. T. Dohan of Victoria examine the underlying principles and suggest how the dental profession shou!d prepare to meet such eventualities.*

## The lesson of Quebec's medicare

Several years ago former Canadian Dental Association Secretary Don W. Gullett outlined the CDA's intent to develop closer cooperative liaison with the federal government. Doctor Gullett was looking ahead to the day when federal and provincial governments would become involved with health care plans. That day has now arrived and we can be grateful to the Canadian Dental Association for such long-range planning.

Early last November Quebec became the eighth province to introduce medicare under the umbrella of Ottawa's national medical care insurance plan. On November 27 Premier Robert Bourassa announced that his government would extend the medical insurance plan to cover the cost of dental care for children seven years old and under. Legislation amending the plan has already been drafted and may become law by the time this issue of the Journal comes off the press.

It would be folly to dismiss these events, notably the recent experience of Quebec's medical specialists, as matters of no consequence for health professionals outside that province. Many important questions of principle arise from the Quebec situation, and it is imperative that dentists everywhere be cognizant of the issues as dental care progressively becomes part of the larger health care package.

Originally the Quebec Health Insurance Act proposed to cover, as in other provinces, all basic medical and surgical costs along with specific oral surgery procedures rendered in hospital by a dentist. Participation was compulsory for every resident. The plan also had a mild opting-out provision. Under it a practitioner could stay outside the scheme, but his patients would then receive only 75 per cent of the benefit normally paid for covered services.

Under pressure from the labour unions and the threat of province-wide strikes, the government later withdrew the opting-out clause, thereby ruling out any claims for compensation by non-participating physicians. This action, coupled with the abolition of private medical insurance, would have forced all patients and practitioners into the scheme.

The restriction of free participation by the physician and the annulment of his right to opt out without loss of benefit to his patients provoked a withdrawal of services by the majority of the province's specialists, a situation which lasted for 10 days. Mr. Bourassa's response was Bill 41, a very restrictive piece of legislation which compelled the specialists to return to practice immediately or face severe fines or jail sentences. This reprehensible law is indicative of the sweeping powers which enable a government to negate civil liberties, control a profession and deny the rights of individual citizens. Fortunately, Bill 41 has since been repealed.

Subsequent to the specialists' withdrawal of services the government came up with a new opting-out proposal. This allowed a practitioner to bill his patients directly and the patients to receive plan benefits, but prohibited physicians from charging more than the government's actual payment for the service involved. The specialists were understandably cool for obvious reasons. Fees for service under the Quebec plan are to be paid according to a schedule of benefits prepared by the government. Actuaries estimate the schedule will pay about 65 per cent of the provincial fee schedule — payment which Quebec physicians

will have to accept in full. Billing to the provincial schedule, "customary and usual" billing or overbilling is ruled out.

Other clauses in the Health Insurance Act have also aroused the medical community. Particularly irritating were the provisions whereby some aspects of licensing and discipline — traditionally the responsibility of the College of Physicians and Surgeons — would be usurped by the government's health insurance commission. Fortunately, the act has since been changed to protect the college and its responsibilities in these areas.

There are important lessons to be drawn from the events in Quebec.

First, we must cooperate in seeking ways to make the rising cost of dental care less burdensome for our patients. Anything less betrays a gross lack of social conscience and a paucity of political acumen.

Secondly, our provincial associations must maintain realistic and defensible fee schedules which can serve as a fair and meaningful guide in negotiations.

And finally, we must hold firmly to the principle that licensure, discipline and the control of professional activity cannot be surrendered to governmental agencies without compromising the quality of dental care.

I hope these measures will serve to protect the professional freedom of the dentist, allowing him to deal directly with his patient and render care of the highest standard.

I am grateful to those who were guided by these principles in the conduct of past negotiations. I trust that we will continue future negotiations in a spirit of conciliation and concord. For it is better to prepare for a take-off than to be a reluctant participant in a crash landing.

*J. A. Guest, DDS*
*287 Queens Ave*
*London 14, Ont*

## Let's prepare for denticare

"Medicare," as Canadian Medical Association President D. L. Kippen said recently, "is here to stay. Doctors must close ranks and work with, not against, governments to develop workable and sound health plans." And costly though it may be, denticare — or whatever you wish to call a government dental insurance plan — is also coming our way.

Unfortunately, the introduction of government health plans has often been clouded by discord between the providers of service and the lawmakers who enact conditions under which this service is to be rendered. For our part, it is essential to have a strong and unified profession, one voice that speaks with authority and can make decisions for all branches of dentistry.

The professions in North America have traditionally regulated their own activities; but we live in changing times and these traditions are not valued to the same degree by other sectors of society. In fact, many people view health care as a public utility and wish to exert more influence on how this care is to be rendered. This is quite evident in recommendations of recent inquiries into the delivery of health care. However, control of professional judgement or discipline cannot be surrendered to an external agency without jeopardizing the quality and quantity of service and, indeed, the very existence of our profession.

I believe the dental profession must have its own mechanism for controlling members as participants in any public health insurance plans. Quality and cost control and ethical considerations arising from use or abuse of a plan must remain within the professional domain if the public is to receive full value for its health dollar. The profession, for its part, must so exercise its powers that this is exactly what happens. Opting out, billing and overbilling, while important in themselves, are nevertheless secondary to the crucial issue of professional control.

British Columbia has had a long history of private medical health care. Most of our physicians are satisfied with the system, and this feeling has not diminished since the advent of medicare. Our dentists, too, are participating in private dental insurance plans, and I have no doubt that most of them would be quite happy if they were practising under the conditions pertaining to medical practice. If this assumption is correct, there may be no need to opt out. Nevertheless, there is no reason why a practitioner should not be allowed to practise outside the plan while his patients continue to receive the full benefits.

Some BC dentists prefer to render accounts to their patients for reimbursement from an insurance plan; others are content to send their bills directly to the plan. In my view there is little to gain by billing the patient who generally waits for reimbursement before settling the account. Surely it is simpler and more efficient to send the account directly to the plan.

Overbilling should be allowed for the occasional services that require extra skill, time or expense, regardless of whether a dentist practises within or outside the plan. Such treatment must be preceded by a formal agreement between the patient and the dentist covering the extra charge.

Routine overbilling would require justification to satisfy the professional control group that rendered services were consistently superior. Overbilling in that event would have to be indicated for each patient when claiming plan benefits.

The privilege of overbilling should be reasonably accessible. Application to the appropriate professional committee should suffice. The same procedure could also be used for treatment not included under the list of covered services.

To summarize, we must strive to retain complete professional self-control. We must do so in a manner that merits the trust of the public and of our own members. Confrontation with governments should be avoided at all costs. The events in Quebec prove that a withdrawal of services is no answer to negotiations with government.

Denticare? It'll be here to stay!

*M. J. T. Dohan, DDS*
*1035 Pandora Ave*
*Victoria, BC*

# Island hygienists boost productivity

Sharply higher productivity by dentists appears certain through the use of dental hygienists with limited duties in restorative dentistry, according to preliminary results of a study in Prince Edward Island.

While participating dentists are enthusiastic over the results so far, an added finding is likely to allay one nagging uncertainty.

There has always been the question of public acceptance of hygienists with expanded duties. Patients who pay to have treatment from a dentist may not wish to be relegated to another person who does not have the same skills and knowledge. That was the worry.

But according to the progress report from a dental manpower study by Prince Edward Island's Department of Health, "patient acceptance has been excellent."

In February 1969, the health department received a federal health research grant to carry out a two year study to see whether hygienists can increase productivity of dentists by inserting and finishing restorations in addition to their traditional duties. The cavities would first be prepared by the dentist.

Some 1,000 adults and 1,000 children have so far been treated this way. The adults and 250 children were treated in six private dental offices; 750 children went to a special public health clinic. All have totally accepted the situation. "There have been no problems whatever," says R. G. Romcke, the department's director of dental public health.

"From our limited experience to date, it seems probable that the dental hygienist with limited duties in restorative dentistry is indeed a valuable auxiliary in a private dental office. The quality of the restorations produced by the six dental hygienists involved is excellent."

All the participating dentists say they liked the system and enjoyed being able to spend more time on more challenging procedures. Three have backed this enthusiasm by hiring specially trained hygienists on a full-time basis and purchasing another $4,000 to $8,000 worth of dental equipment.

The two year study, which is halfway complete, is based on studies by the Royal Canadian Dental Corps with dental therapists.

The first three dental hygienists were trained for two and a half months at Dalhousie University's Faculty of Dentistry, starting in June 1969. Three more followed in June 1970. They learned how to apply rubber dam, matrix retainers, cavity liners and all types of protective bases. They also were taught how to insert, carve, contour, finish and polish amalgam, silicate, plastic and composite resin dental restorations.

The study is taking place in the six private dental offices and the special public health clinic for children. The clinic provides data which cannot be readily obtained in private offices. Various combinations of hygienists and assistants are being evaluated in the clinic through productivity records, work sampling and time studies.

The six dentists in the private practice part of the study kept detailed records of every treatment performed for six weeks before the hygienist arrived and for the three months the hygienist was present.

This part of the study was further expanded last August when three of the dentists hired the second group of Dalhousie-trained hygienists on a two year contract basis. The three will continue to keep detailed records of all treatment performed for two years. Because each dentist is paying all costs, any observed changes in productivity will be most meaningful, says Doctor Romcke.

In the clinic, a dentist worked for 60 days with one assistant and then another 60 days with two. Two

View of a portion of the public health treatment clinic in the Prince Edward Island dental manpower study. Dental hygienist Mrs. Rosalyn Froehlick at chair 2 (right) is restoring teeth which were previously prepared by the dentist. She is aided by dental assistant Anne Corcoran. Doctor P. H. Creighan, aided by dental assistant Heather MacAulay, is preparing cavities at chair 1 (left). He will soon move to chair 3 (not shown). The dental hygienist follows the dentist from chair to chair. If she is delayed, Doctor Creighan completes the restorations himself.

operatories were used. Then a third operatory and a dental hygienist were added.

The preliminary results show a 25 per cent jump in productivity when the second assistant was added. A further increase of 67 per cent was recorded when a third operatory and a hygienist were added.

The second figure is based on only the first 39 days of a 60 day recording phase. But if this rate is maintained, overall productivity increase will be 108 per cent.

Several additional combinations of personnel and equipment will be studied in the clinic. The next phase will use four operatories with two hygienists and three assistants.

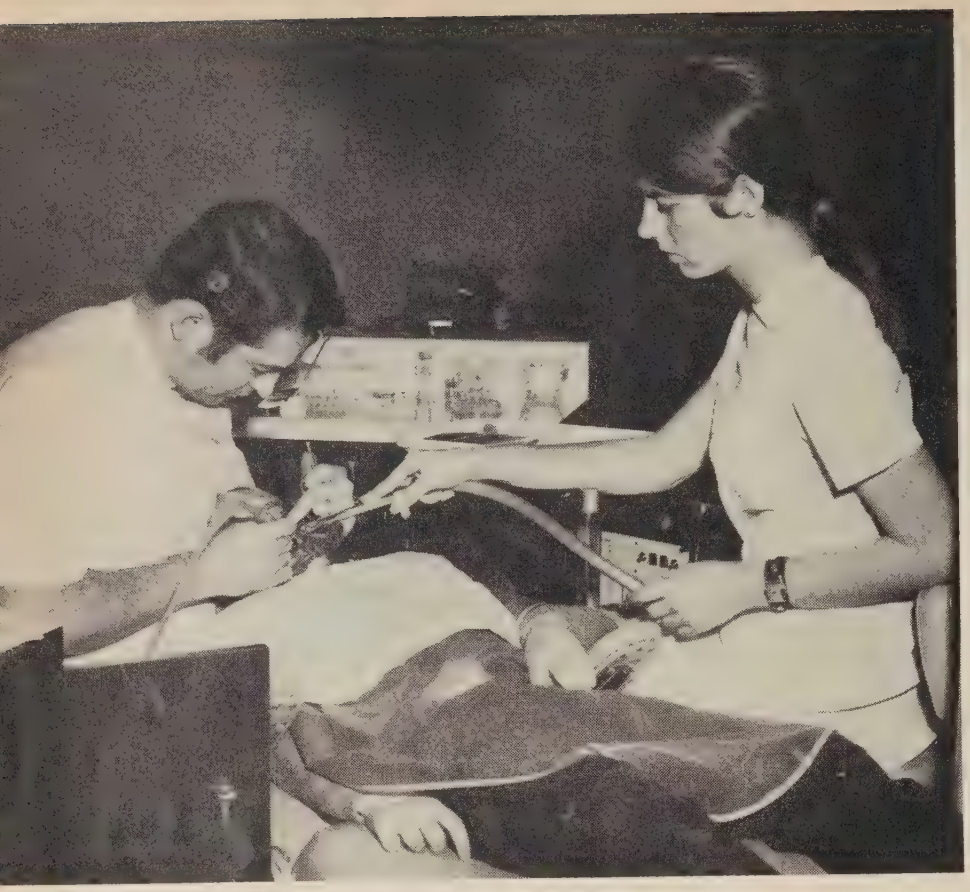
The specially trained hygienists worked in six private dental offices for approximately three months. In this part of the study, many variables influenced the results. Variables included hours of work, equipment, office layout, the number of assistants, the dentist's previous practice experience (which ranged from two to 22 years), and the adaptability and attitude of each dentist. In some cases an assistant was added along with a hygienist.

There were marked differences in the initial productivity of the six dentists and of the hygienists. However, the differences are desirable. It points out the need for an auxiliary to be effective under the wide range of conditions found in private practices.

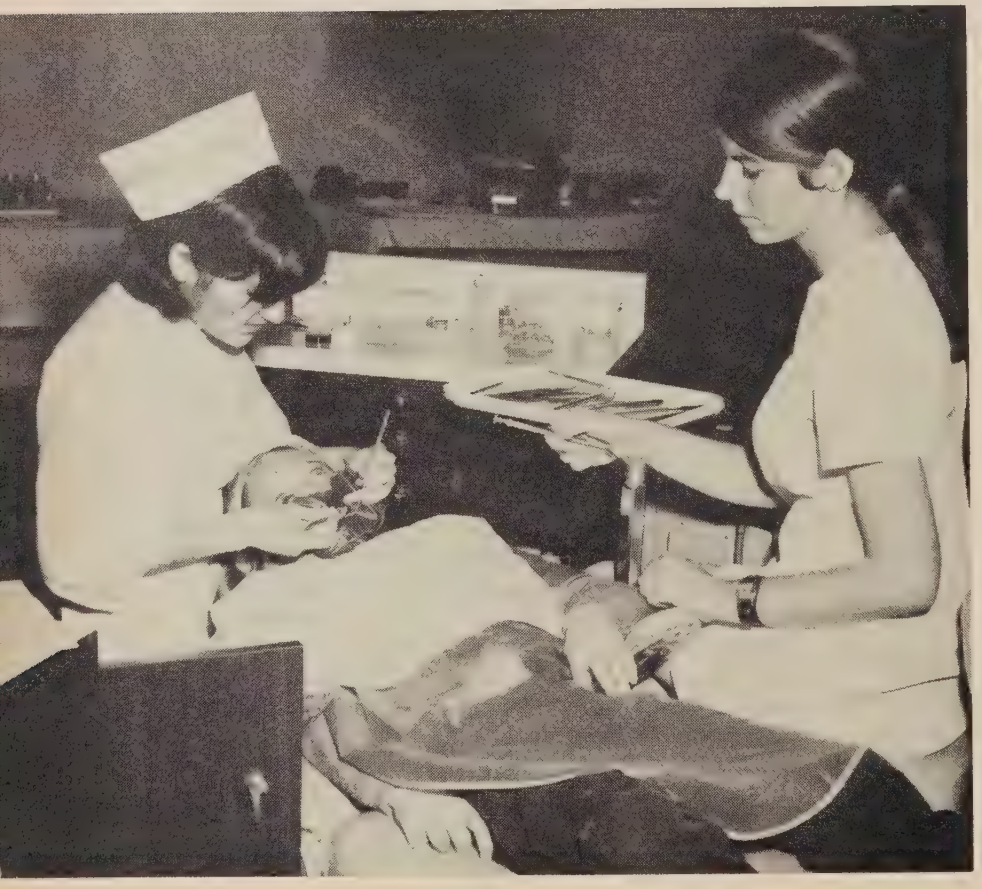
Evaluation in private practice is based on the relative value unit system, outlined in the 1965 *Transactions* of the Canadian Dental Association. This system serves as the basis of most provincial fee schedules.

Generally, each restored surface and extraction has an average value of 1RVU. A complete denture is valued at 15RVU while an examination is 1.25. Under the varying conditions encountered in the study, productivity increases of 15 to 32RVU per day were recorded by five dentists.

The average increase in RVU was 41 per cent in spite of the far from ideal physical facilities available. In the offices with an additional added assistant, productivity gains were 50 per cent or more. In



Above: Doctor Creighan makes a cavity preparation. Below: Dental hygienist Hazel MacRae inserts the restorations a few minutes later. Both are aided by dental assistant Anne Corcoran.



Dental hygienist Mrs. Rosalyn Froehlick carves an amalgam restoration. Aiding her is dental assistant Anne Corcoran.

offices with only one assistant, the gains were from 30 to 40 per cent.

A detailed cost-benefit analysis will be carried out over the next few months, but preliminary figures indicate that the dollar value of the benefits will be close to double that of the cost.

The team concept requires a three operatory dental office. Three assistants and three fully equipped operatories seem to achieve the best results. The dentist is followed from chair to chair by the hygienist. Patients are usually treated three at a time.

The results from the public health clinic must be viewed with caution as they are based on only one dentist and one hygienist. However, stopwatch time studies indicate that the hygienist is almost as fast as the dentist when performing the same procedure. This shows that the delivery system is capable of the percentages recorded.

It seems likely that the addition of a second hygienist would enable one team to provide complete and continuing preventive and maintenance care for about 4,000 children. The staff could commute up to 50 miles in a four chair mobile clinic. Children could be brought by bus from a distance of 75 miles, and the clinic could serve an area with a diameter of 150 miles.

"This concept could well form the basis of a new system for delivering dental care to children in a rural area," says Doctor Romcke.

The study has generated much interest across Canada and in parts of the United States. Doctor Romcke has received numerous requests for reports on the project.

The study was described at last year's CDA national convention in Winnipeg and at the recent Atlantic Provinces dental convention in Sydney, NS.

Dalhousie University's Dean J. D. McLean says that the new duties carried out by the hygienists in the study will be included in the regular dental hygiene curriculum, hopefully next year. In preparing for the course changes, the dean and members of the dental faculty visited the clinics and offices in Prince Edward Island where the specially trained dental hygienists are working.

*CDA Associate Membership* — Many dentists who retire from active practice or move abroad do not renew their licence to practise dentistry in Canada. Discontinuation of their provincial licence results in an automatic lapse of membership in the Canadian Dental Association and the cessation of CDA membership privileges such as the subscription to the *Journal of the Canadian Dental Association,* the receipt of other association mailings, eligibility to participate in CDA-sponsored group insurance programs, and receipt of a CDA membership which entitles the holder to admission at many foreign dental meetings. If you are one of these dentists, you can continue to receive these benefits by applying for associate membership in the CDA at $20 per year. To maintain your contact with organized dentistry in Canada, write for your application form to W. G. McIntosh, Secretary, Canadian Dental Association, 234 St. George Street, Toronto 180. Ontario.

## National Convention

The 1971 annual meeting of the Board of Governors of the Canadian Dental Association will be held at the Chateau Laurier Hotel, Ottawa, September 27-29. The meeting is open to all members of the Association.

The national convention of the Canadian Dental Association begins on Wednesday evening, September 29, and continues through Saturday, October 2.

### Announce essay and clinical lecture program

Ten outstanding Canadian and American dental scientists will participate in the CDA national convention at Ottawa, September 30-October 2, Convention Chairman J. D. Purves has announced. Their topics will range from the latest developments in preventive dentistry, through preprosthetic surgery to practical restorative dentistry.

Sumter S. Arnim, dean of the University of Texas Graduate School of Biomedical Sciences, Houston, Texas, will discuss "Practical Preventive Dentistry in Modern Practice." Doctor Arnim will also address the Canadian Society of Public Health Dentists.

"The Tried and the New in Preprosthetic Surgery" is the subject of an address by Richard G. Topazian, chairman of the Department of Oral Surgery at the Medical College of Georgia. Doctor Topazian, who is a consultant to the US Army and Veterans Administration, is also a member of the editorial board of the *Journal of Oral Surgery*. He will also address the Canadian Society of Oral Surgeons. Additional English and French presentations in oral surgery will be made by William B. Donohue, associate professor of oral surgery at the Université de Montréal.

Dental implants are the subject of a discussion by Joseph L. Bernier, chairman of the Department of Oral Pathology at Georgetown University, Washington. Ronald G. Jones, chairman of the Department of Fixed Prosthodontics at McGill University, Montreal, will deal with new developments in the fields of occlusion, porcelain fused to gold restorations, and fixed prosthodontics.

The current status of composite resin restorative materials, including insertion techniques and a comparison of available materials, will be considered by a research group from McGill University, Montreal. They include Dean Ernest R. Ambrose, D. R. Leith, M. Pinchuk and Melvyn Shevell. H. W. Gilmore, chairman of the Department of Operative Dentistry at Indiana University, will also cover a range of practical topics in operative dentistry, while Harry Rosen, associate professor and director of graduate programs in restorative dentistry and prosthodontics at McGill University, will describe methods of developing an occlusion in porcelain.

Robert F. Harvey, chairman of the Department of Periodontology at McGill University, will examine all aspects of periodontal therapy for the general practitioner. Another Montreal dentist, Berl L. Mendel, will emphasize considerations common to operative dentistry and periodontics. Benjamin Sedlezky and B. Harvey Wiener, also of Montreal, will discuss new developments in endodontics.

In addition to these presentations, there will be a scientific motion picture program presenting the latest films on dentistry and a special half day panel discussion on the subject of occlusion.

J. L. Bernier

R. G. Topazian

### Class reunion set for September 30

Thursday evening, September 30, has been set aside as a "free evening" for delegates attending the CDA national convention in Ottawa September 30-October 2.

Readers who wish to arrange class reunions that evening should write, specifying their requirements, to G. V. Allen, Business Manager, 1971 CDA National Convention, PO Box 147 (400), Malton, Ont.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on December 31:

*Fixed Income Fund* $11.030;

*Common Stock Fund* $21.988.

Total assets (market value) of the plan were $9,219,681.09.

The following portfolio purchases and sales occurred during the preceding month: bought 2,000 shares Boise Cascade Corp and 4,000 shares Placer Development; sold 3,000 shares Sante Fé International and 5,000 shares Zellers Ltd.

February 28, 1971, is the final date for contributions to the CDA Retirement Savings Plan for the 1970 taxation year. Money received after that date must be credited to 1971. Readers are urged to send their contributions early and mail them direct to Canadian Dental Service Plans Inc, 230 St. George St, Toronto 180, Ont.

## Canada and the Provinces

### CDA president endorses cancer fund campaign

Canadian Dental Association President W. J. Spence has issued a statement endorsing the Canadian Cancer So-

ciety's annual appeal for funds. The campaign is held during "Cancer Control Month" in April.

President Spence described the Canadian Cancer Society as an "ally" in our joint efforts to promote good oral health throughout Canada. He praised the society's "seven safeguards," one of which urges Canadians to "have your dentist check for unusual conditions."

### Brig.-Gen. E. M. Wansbrough dies at 72

Brig.-Gen. Elgin M. Wansbrough, veteran of both world wars and former Director General of Dental Services for the Canadian Forces, died in Ottawa December 20. He was 72.

Born in Bowling Green, Ont, he graduated from the Royal College of Dental Surgeons of Ontario in 1923 and later practised in Shelburne.

General Wansbrough won the Military Medal in World War I. Between the wars he served as an officer in the Lorne Scots, a militia unit.

He joined the Canadian Dental Corps in 1939 and was appointed director general of dental services in 1946.

General Wansbrough's lengthy military career took him to the United Kingdom, Europe, the Middle East and the Far East.

He was made an Officer of the British Empire in 1945 and appointed Queen's Honorary Dental Surgeon in 1953. He had been colonel commandant of the Royal Canadian Dental Corps since 1965.

In a letter to Mrs. Wansbrough, CDA Executive Director W. G. McIntosh praised General Wansbrough as "a leader among men, a great friend and one of the dental profession's greatest ambassadors who will be sorely missed."

Brig.-Gen. E. M. Wansbrough

### Future Quebec dentists would need knowledge of French

The Quebec government has introduced a bill that would require future immigrants, seeking admission to dentistry and 18 other professional bodies, to have "a working knowledge" of French.

The bill is seen as legislation designed to foster the integration of immigrants into the province's French-speaking majority sector.

Under the bill, immigrants would not be forced to integrate into the French milieu, but it would be practically impossible for professionals to settle in the province without a working knowledge of French. However, it "protects the acquired rights of persons who have already been admitted by a corporation."

The bill would also remove a requirement that a person must have Canadian citizenship before being admitted to some of the corporations and associations mentioned in the proposed legislation. It simply requires that an immigrant apply for his citizenship "within the minimum legal delays."

### Analgesia group sets course in April

The Toronto Analgesia Study Club is sponsoring a course in nitrous oxide-oxygen inhalation analgesia April 26-27, it has been announced.

Lloyd Elkowitz of New York City will discuss the relationship between analgesia, general anaesthesia, hypnosis and intravenous sedation. Other topics include the physiology of analgesia; agents, equipment and facilities; analgesia techniques; pre-evaluation, contra-indications, postoperative care and the management of emergencies.

For further information, contact B. H. Korzen, Secretary, Toronto Analgesia Study Club, Suite 208, Cooksville Medical Building, Mississauga, Ont. Telephone 277-8673 or 270-3161.

### Mercury-treated toothbrush cited as health hazard

The US Federal Trade Commission has announced that Doctor West's "Germ Fighter" toothbrush is treated with mercury and could "ultimately be dangerous to the consumer."

The FTC said it had no authority to ban the brushes, which are also sold in Canada, but urged that the mercury treatment be stopped.

The FTC complaint also accused the Chemway Corporation of Wayne, NJ, of deceptive advertising by claiming that the toothbrush kills germs likely to cause infectious mouth diseases. An FTC attorney said Chemway treats the brushes with mercury which kills germs but does not affect cavities or other oral ailments.

A Chemway spokesman, according to UPI, said the firm had abandoned the mercury treatment recently and had not advertised Doctor West's toothbrush since 1969. He said mercury-treated brushes were still available but claimed: "We have substantial testing that indicates that there is no health hazard."

The FTC said nine million of the toothbrushes were sold last year.

## International Items

### American oral surgeons slate Beverly Hills conference

"Reconstructive surgery for oral prosthesis" is the subject for the American Society of Oral Surgeons' 1971 continuing education conference to be held April 25-27 in the Beverly Hilton Hotel, Beverly Hills, California.

The registration fee which includes a luncheon is $50 for ASOS members, candidates and applicants, $35 for certified oral surgery residents in oral surgery programs accredited by the American Dental Association, and $75 for non-members of the ASOS. Programs and registration forms may be obtained from the American Society of Oral Surgeons, 211 E Chicago Ave, Chicago, Ill 60611, USA.

### Oral diagnosis course in Washington

The US Army Institute of Dental Research will give its annual course in oral diagnosis and therapeutics April 26-30. The program is intended for general practitioners and will cover diagnosis and treatment in all phases of general practice. Sessions on endodontics, periodontics, pulp therapy, x-ray interpretation, oral surgery and prosthodontics will be presented.

For further information, please write to Col. S. N. Bhaskar, Director, US Army Institute of Dental Research, Walter Reed Army Medical Centre, Washington, DC 20012, USA.

### Dental medicine conference in May

The Northwest Academy of Dental Medicine has invited Canadian dentists to attend its 27th annual conference at the Salishan Lodge, Gleneden Beach, Oregon, May 20-23. Further information may be obtained from Gladys H. Underwood, 610 SW Alder, Portland, Oregon 97205, USA.

### Britons face new dental charges

Dental care may fall victim to proposed public spending changes under Britain's National Health Service.

In a white paper tabled last October 27, the government announced its intention to introduce a wide range of fees for dental services.

"The charges . . . will be related to approximately half of the cost of the services actually provided, apart from dental examinations which will continue to be free of charge," the white paper said, adding that "It is proposed in due

Nymphenburg Palace near Munich, Germany, is world-famous for its collection of china. Munich is the site of the 59th annual session of the Fédération Dentaire Internationale, June 16-22, 1971.

course to reduce the upper age limit of exemption for young people from 21 to 18."

The British Dental Association has protested against the deterrent effect of these proposals which the association terms a "serious threat to the dental health of the people" of Britain.

### Program set for FDI Munich meeting

German dentists are preparing a warm welcome for their many colleagues from all over the world who are expected to attend the Fédération Dentaire Internationale's 59th annual session in Munich, June 16-22, 1971.

The scientific program begins on Friday June 18 with presentations on ultrasonics in dentistry, intra-oral telemetry and electronic registration of tooth movement. Other sessions on Sunday and Monday June 20-21 will be devoted to transplantation in dentistry and sensory mechanisms in teeth.

Scheduled for the ladies' and social programs are visits to the Nymphenburg Palace and to the Nymphenburg China Factory. Other highlights will feature a gala performance of the opera *Fidelio* in the National Theatre, a symphony concert, a Bavarian evening in the Löwenbräukeller, fashion shows, a banquet and a ball.

For further information, please write to G. H. Leatherman, Secretary General of the FDI, 64 Wimpole St, London W1M 8AL, England, or to Rolf Braun, Secretary General of the Organizing Committee, 59th FDI Annual Session, Universitätsstrasse 73, 5 Cologne 41, Germany.

## Dental Organizations

### Quebec oral surgeons elect new officers

André Charest, Quebec City, has been elected president of the Association of Oral Surgeons of Quebec.

Mervyn Gornitsky, Claude Madore and Edward Slapcoff, all of Montreal, are respectively vice-president, secretary and treasurer.

K. C. Bentley and Paul Mercier, also of Montreal, are councillors.

### Saskatchewan College has new executive

Swift Current dentist F. L. Pierce has been elected president of the College of Dental Surgeons of Saskatchewan, succeeding C. G. Halliday of Saskatoon. J. C. Zaparinuk of Moose Jaw was named vice-president. F. T. Wihak, Regina, is the representative to the CDA Board of Governors.

## Dental Education

### Royal College examination results announced

The Royal College of Dentists of Canada has announced the names of dentists who passed examinations held last September and December.

Candidates who were successful in the Part I (Basic Sciences) examination held September 21 are:

*Oral Surgery*–H. R. Bergman, Kelowna, BC; Guy Maranda, Quebec; P. H. Trester, Vancouver; and G. C. White, Oshawa, Ont.

*Orthodontics*–D. G. Brett-Williams, St. John's, Nfld; R. Chan, Toronto; and S. Miller, Pointe Claire, Que.

*Paedodontics*–G. Z. Wright, London, Ont.

*Periodontics*–E. J. Hannigan, Halifax, and S. Richmond, Toronto.

*Prosthodontics* – S. M. Kennedy, Westmount, Que, and M. Pinchuk, Montreal.

Successful candidates in the Part II (Oral) examination held December 4-5 are:

*Oral Surgery*–G. I. Baker, Toronto, and J. G. Zosky, Mississauga, Ont.

*Periodontics* – E. M. Hershenfield, Montreal.

*Prosthodontics*–H. J. Levin, Toronto, and R. C. McClelland, Edmonton.

Candidates who were successful in both the Part I and Part II examinations are:

*Oral Surgery*–J. A. Haws, Calgary, Alta; P. R. Morgan, Minneapolis, Minn, USA; W. S. Prusin, Toronto; and A. D. Taliano, St. Catharines, Ont.

### Educational opportunities

*Continuing education*

The University of Alberta Faculty of Dentistry, Edmonton, is offering four continuing education courses from February to May.

The first course on dental materials will be held February 20 with a tuition fee of $35.

Crown and bridge prosthodontics is the subject of the second course, March 18-20, and the fee is $90.

A one day course on paedodontics will be held April 23 with a tuition fee of $35.

A course on complete denture prosthodontics II will be held May 31-June 5. This course is limited to those who have completed the course in complete denture prosthodontics I. The fee is $150.

### Warner-Lambert sponsors new CFDE dental teacher fellowship

A new annual $1,500 CFDE dental teacher fellowship made possible by

Young Robert Hagborg, a pupil at the Warren (Manitoba) elementary school, opens wide for University of Manitoba dental student Siggy Sigurdson. The obliging boy was one of 225 pupils who benefitted from a fluoride "brush-in." The entire first year dental class from the University of Manitoba participated in the program, sponsored and supervised by Manitoba provincial dental services.

First year University of Manitoba dental student Leon Stein discusses the proper method of brushing the teeth with an interested child during a mass application of a special fluoride tooth paste at the Warren elementary school. Fellow student William Koltek assists another child in learning the "brush ten times" technique, getting into the spirit of the brush-in as he applies the tooth paste to another girl's teeth.

support of Warner-Lambert Canada Ltd has been announced by M. E. Bower, chairman of the board of trustees of the Canadian Fund for Dental Education.

Mr. Bower said the award, offered annually, will enable an established teacher in one of the Canadian dental schools to refresh and extend his knowledge in any field of dental education or education research.

Since 1963 the Fund has awarded 83 fellowships worth over $140,000 to assist dentists in becoming dental teachers and research workers. According to Mr. Bower this, however, is the first fellowship offered to help existent teachers improve their skills and represents yet another big step forward in the Fund's continuing efforts to advance dental education and research.

## Economics

### New Oklahoma practice act affects dentists, assistants

A new dental practice act has been enacted in Oklahoma. The new law allows a "dental assistant and/or dental nurse" to assist a dentist, acting under his direct supervision and control and in accordance with the educational requirements, rules and regulations promulgated by the state board.

In Mississippi, the dental law has been amended to permit dentists greater flexibility in delegating functions to dental auxiliaries acting under their immediate supervision and direction. A dental specialty licensure law has also been enacted.

## Public Health

### Manitoba students help "Brush-In"

First year students in the University of Manitoba's Faculty of Dentistry were recently exposed to the practical side of their training when they participated in a teaching-learning experience at the elementary school in Warren, a small rural community of about 200 people, 30 miles from Winnipeg.

The 33 students, only two months into their four year course, joined with the staff of Manitoba's provincial dental services in a "brush-in" to apply a non-commercial fluoride dentifrice to the teeth of 225 school children.

The three-pronged project helps protect the children's teeth and gives the students an opportunity to study various dental conditions and a chance to learn to work with children. It also provides the dental services with a possible source of new staff, through interest aroused among the students.

The students, 13 of whom already have university degrees (one a PhD in oral biology), worked with pupils in grades 1-3. While applying the 9 per cent fluoride toothpaste (Zircate) they explained the proper methods of brushing teeth and encouraged the child to continue good dental practices. Each child was given a new toothbrush to take home.

Older children, grades 4-8, brushed their teeth under instruction of one student to each group of four children.

Supervisory staff were drawn from Manitoba provincial dental services and included C. H. McCormick, director; H. J. Short, regional director; and C. G. Shapera.

### Four year study to probe time, cost and manpower requirements for preschool incremental care

An initial group of 1,000 three year old children will participate in a demonstration incremental care study soon to begin in southwestern Ontario's Waterloo County.

Results of the project, expected to last for four years, will give answers to the way in which a province-wide dental plan may be developed, including estimates of cost and manpower re-

quirements for initial dental care and maintenance care through ages four and five.

Two groups of 1,000 children will be started in two successive years.

The plan includes an initial screening examination, bitewing radiographs, teaching and demonstration of good preventive dental care, a topical fluoride treatment, and completion of needed dental care such as fillings, extraction and space maintenance.

Counselling will be available to parents for special needs in relation to orthodontic, endodontic and periodontal treatment. All services for the initial group are free of charge.

Waterloo County health unit dental staff will carry out the initial screening and dental health counselling for all study participants.

In some cases, they will also provide the radiographs and fluoride applications. The remainder of the treatment will be completed by local practising dentists.

In charge of the project are M. E. Jarrett, dental director for the Waterloo County health unit, and D. W. Lewis, associate professor and chairman of the Department of Dental Public Health, Faculty of Dentistry, University of Toronto. Four members of the Waterloo-Wellington Dental Society will serve as advisers to the program.

### National Health Week March 14-20

Canada's 27th annual National Health Week will be observed March 14-20. The Health League of Canada sponsors Health Week in cooperation with departments of health and education and many other organizations across the country.

Continuing education to promote and conserve health by all possible means is stressed during Health Week by radio, television, newspaper and magazine coverage and by talks given to service clubs and other organizations.

### John Greene new head of US Public Health Service Division

John C. Greene has been named assistant surgeon general and director, Division of Dental Health, US Public Health Service.

Doctor Greene is a developer of the Oral Hygiene Index and the Simplified Oral Hygiene Index used by dental researchers for evaluating oral cleanliness in dental health studies. He has also done extensive research on the epidemiology of periodontal disease.

Doctor Greene, a career officer in the Public Health Service for 18 years, has been a special consultant to the World Health Organization in India and has participated in a number of other international research activities.

## Fluoridation

### Montreal suburbs push fluoridation; otherwise, no water deal

If Montreal wants to supply drinking water to those suburbs it doesn't already supply, the metropolis will first have to approve fluoridation.

At a recent meeting the Conference of Montreal Mayors, representing the 28 island members of the Montreal Urban Community, set the terms for any plan by Montreal to take over the water supply of the MUC.

Those suburbs which now take their water from Montreal want the metropolis to start fluoridating.

Mayor Arthur E. Séguin of Pointe Claire said it costs his community only $20 annually to fluoridate its water for its own citizens and those of Dollard-des-Ormeaux, Beaconsfield, Baie d'Urfé and Kirkland, a total of 60,000 persons.

The initial cost of fluoridation equipment in Pointe Claire was only $7,000 and today both the federal and provincial authorities help defray the installation costs.

## Research

### Research awards for three Toronto scientists

Grants have been announced by the Medical Research Council for the following three staff members of the University of Toronto Faculty of Dentistry:

To A. H. Melcher for research on in vitro culture of mouse mandible;

To D. C. Smith for study of polymers with potential adhesion to calcified tissues; and

To A. R. Ten Cate for investigations of reticulin, connective tissue and the periodontium.

### Abrasive paste may ruin teeth, ADA reports

The American Dental Association has released the results of a study which suggests that some tooth pastes may be too abrasive for the dental enamel of compulsive brushers.

A report from the Council on Dental Therapeutics in the November 1970 issue of the *Journal of the American Dental Association* reported that the purpose of the study was to provide the practising dentist with reliable information on the abrasiveness of American dentifrices to give individual patients advice on what type of tooth paste to use.

"A dentifrice should be no more abrasive than is necessary to keep the teeth clean – that is, free of accessible plaque, debris and superficial stain. The degree of abrasivity needed to accomplish this purpose may vary considerably from one individual to another," the article said.

The study found the dentifrices lowest in abrasiveness were T-Lak, Thermodent, Listerine and Pepsodent. The most highly abrasive were Smokers' Tooth Paste (Walgreen), Iodent No 2, Sensodyne (Block Drug) and Vote (Bristol-Myers Co).

### Phosphoric acid treatment increases caries resistance

Pretreatment of teeth with a phosphoric acid solution prior to topical fluoride application can greatly increase caries resistance, a Forsyth Dental Centre scientist told the American Dental Association's scientific session last November. "Enamel fluoride retention is greatly enhanced if the enamel is demineralized mildly with dilute phosphoric acid prior to fluoride application," according to Poul Gron of Boston.

"In a clinical trial it was found that children who received the pretreatment and acidulated phosphate fluoride (APF) topical application developed 26 per cent fewer decayed and filled teeth and 32 per cent fewer decayed and filled surfaces over a one year period when compared with children who only received the APF treatment," he added.

Doctor Gron pointed out that clinical research suggests that fluoride when applied to mildly etched enamel enhances the potential of enamel for remineralization.

Discussing the problem of improving enamel retention of topical fluoride, he said it has been shown in previous research that a major portion of the fluoride deposited in enamel from topical treatments washes away during the first 24 hours and only modest amounts are retained permanently.

In this study to increase fluoride retention by the enamel, attempts to demineralize and deproteinize were used, he explained. The clinical trials were conducted in an urban non-fluoridated community and the 200 children studied ranged from seven to 16 years of age.

### Bone grafting may assist problem denture patients

A University of California oral surgeon has reported a bone grafting technique involving a metal implant as a possible aid to problem denture patients. P. J. Boyne of Los Angeles said the method was used successfully on 10 patients by achieving regeneration of the grafted bone and acceptance by the host site.

Addressing last November's American Dental Association scientific ses-

sion, he said the technique can benefit patients who have experienced considerable difficulty in tolerating lower dentures because of lost or receding lower jaw ridges.

The method involves the use of a metal implant which is lined with a filter membrane. The filter permits the passage of tissue fluids but prevents scar tissue from entering into the grafted area and interfering with the success of the marrow and with bone regeneration of the area.

The metal implant containing the graft material is secured to the patient's lower jaw bone by means of metal screws and the implant is completely covered by layers of soft tissue, he explained.

The metal implant was removed eight to 10 weeks after surgery and dentures were constructed for the patient immediately. At the time of implant removal it was found that regeneration of bone to the height and contour established by the outline of the metal implant had been achieved in all cases, he said.

"Further evaluation of these patients is planned on a long-term basis to determine if the restored ridges eventually undergo resorption, and to determine the length of time that the reconstructed areas will maintain the newly restored height under the function of denture prosthesis. The clinical results to date have been most encouraging," Boyne concluded.

## Overcrowded teeth may cause child's periodontal problems

Periodontal disease, usually considered an adult problem, often occurs in children, particularly those with overcrowded teeth and those undergoing orthodontic treatment.

Speaking at last November's American Dental Association scientific session, J. D. Subtelny of Rochester, NY, said that "orthodontic treatment is most frequently undertaken at age levels when youngsters seem to be most lax about instituting and continuing good oral hygiene habits." He cited clinical studies which have disclosed that youngsters with orthodontic disorders displayed increased susceptibility to periodontal impairment.

Since the severity and frequency of periodontal problems increase with age, orthodontic corrections should best be initiated at younger age levels where "there is a more optimal potential for tissue repair and a greater prospect for preventing chronic problems," he stated.

Discussing the relationship between orthodontic and periodontal therapy, Doctor Subtelny noted that "orthodontic therapy itself may introduce artificial conditions that are conducive to the evolution of periodontal destruction."

The actual moving of teeth in the course of orthodontic treatment places a heavy burden on the gum tissues. If periodontal tissues are healthy this tooth mobility will not damage them. However, there is the risk of a breakdown of the periodontal tissues because of poor oral hygiene, he said.

## Bruxism affects teeth, gums and facial muscles

Persons who clench their teeth during sleep or during a "confrontation" can cause damage to the teeth, gums, jaw joint and muscle, according to a Swiss dental scientist.

"The primary causes of bruxism seem to be changes in central nervous activity, as in sleep, in states of nervous tension or in conflict situations. Bruxism can be observed in large segments of the population and in all age groups," according to Peter Schaerer of Berne, Switzerland.

Speaking to the American Dental Association's scientific session last November, Doctor Schaerer said psychological studies have revealed that persons suffering from bruxism frequently display emotional disorders such as excessive fright or aggression, irritability and tenseness. However, by psychiatric standards such persons must be considered normal.

Since the dentist can rarely treat the central nervous aspects of bruxism, he should try to reduce the danger of damage to the oral structures.

Doctor Schaerer listed as symptoms of bruxism changes in the periodontal tissues possibly leading to increased tooth mobility. Continued tooth grinding can also interfere with proper tooth alignment and result in pains within the temporomandibular joint and in the masticatory and other facial muscles.

In treating a patient suffering from bruxism, attempts should be made to spread the mouth closing forces over the whole range of tooth contacts to reduce the degree of attrition to the teeth.

## Specific oral bacteria seen as cause of caries

Caries and periodontal disease are the result of specific oral bacteria which colonize on the teeth when certain substances are present in the mouth, according to a dental scientist from the US National Institute of Dental Research. The bacteria becomes especially active when dextran-producing foods are present in the mouth.

P. H. Keyes of Bethesda, Maryland, discussed the role of bacteria in the formation of decay and periodontal disease during last November's American Dental Association scientific session. He said: "If certain primary colonizing bacteria are not present or if their activity is interfered with, colonization does not occur. It also appears that certain conditions in the mouth are especially conducive to colonization and to the formation of bacterial matts. Poor function of salivary glands, the carbohydrate content of the diet and the frequency of eating have all been implicated as contributory factors either in matt formation or in the various lesions associated with them."

Discussing ways to educate the public about good oral hygiene as a preventive measure, especially for the control of periodontal disease, Doctor Keyes noted: "Today the dirty, the rough, and the crude is definitely in vogue." Rather than stress cleanliness, Doctor Keyes therefore suggested that the problem of infection be stressed as the most important reason for maintaining a clean mouth.

## Partial dentures for youth in accident cases

A Los Angeles prosthodontist has recommended the use of removable partial dentures for teenagers whose teeth are missing because of an accident or congenital problems. F. J. Kratochvil says that normally partial dentures for teenagers or pre-teenagers can be fabricated with the same basic principles that apply to patients of all ages with similar problems.

"However, there are several situations which require special consideration and treatment with removable prosthesis. These are congenital problems, accident problems with loss of supporting structures and mixed dentition," he added.

Addressing last November's American Dental Association scientific session, he said that congenital problems are usually divided into two categories: abnormalities of the teeth and abnormalities of development or position of the supporting structures.

"Both of these conditions usually require maintaining the remaining tooth structure and replacing a portion of the supporting structure as well as restoring clinical portions of the teeth for purposes of aesthetics and correct positioning of the mandible to the maxilla," he stated.

Facial injuries caused by accidents often destroy a section of the dental arch including teeth along with a portion of supporting structures, he explained.

Oral hygiene must require regular and routine evaluation by the dentist as well as extensive patient instruction in care of the tissues and the prosthesis. "It is possible that a well designed, controlled and constructed removable prosthesis will be the treatment of choice for some years following the accident until there is complete development of supporting structures and dental pulps," he added.

### Periodontal care must start at early age

Periodontal disease can be almost totally prevented if treatment is started early in life, an Alabama dental scientist told last November's American Dental Association scientific session. Emanuel Cheraskin of the University of Alabama dental school said that preventive procedures performed for adults should actually be started on youngsters.

Doctor Cheraskin explained that preventive techniques performed on adults "accomplish, primarily, a slowing of periodontal destruction. In some instances the process may be arrested and occasionally some degree of reversal may take place. If this therapeutic knowledge were applied earlier in life, it would actually serve to prevent periodontal disease."

Prenatal influences may play a part in the development of gingivitis, Doctor Cheraskin suggested. He said that studies on rats found that rats kept on various prenatal and preweaning diets showed marked differences in preweanling development of calculus.

Rats fed a prenatal and preweanling diet high in fat content had the greatest amount of calculus at the postweanling stage. Rats fed a high protein diet also had a large accumulation of calculus. Rats kept on a simple bread and milk diet (combination of carbohydrates and protein) had the least amount of calculus. All rats were kept on the same postweanling diet.

From these studies, Doctor Cheraskin said, "it is evident that periodontal health and disease is, in part, a function of early nutritional factors."

## Deaths

Backus, Arthur Adlam. 79. Durham, Ont. Royal College of Dental Surgeons of Ontario, 1920. 15-12-70. Survived by Viola (wife); Mrs. Beryl Smith (daughter); Ida and Mary (sisters); two grandchildren and one great grandson.

Maclachlan, Colin Campbell. 90. Hamilton, Ont. Royal College of Dental Surgeons of Ontario, 1908. 21-12-70. Survived by Lillian (wife).

Moffatt, John Alfred William. 65. Calgary, Alta. University of Alberta, 1934. 23-11-70. Survived by Evelyn (wife); Mrs. R. Southworth and Mrs. G. Van Loon (daughters); Stanley and Ronald (brothers); and five grandchildren.

Ramage, Charles Coleridge. 80. Vineland, Ont. Royal College of Dental Surgeons of Ontario, 1924. 13-12-70. Survived by Mattie H. (wife); James C. (son); Janice and Marsha (granddaughters); Peter and Arthur (brothers); and Mrs. Agnes McKnight (sister).

Rous, Colin. Toronto. Former secretary, Faculty of Dentistry, University of Toronto, 1925-56. 9-12-70.

Wansbrough, Brig.-Gen. Elgin McKinnon. 72. Ottawa. Royal College of Dental Surgeons of Ontario, 1923. 20-12-70. Survived by Essie (wife); W. A. (Sandy) and Gordon B. (sons); and Mrs. D. F. Simpson and Mrs. F. Dworschak (daughters).

Wray, Charles Russell. 70. Beamsville, Ont. University of Toronto, 1925. 12-12-70. Survived by Margaret (wife); Mrs. Robert Grunau (daughter); Mrs. R. W. Burgess (sister); and one granddaughter.

## Awards and Appointments

Recently honoured at a testimonial dinner tendered by the Moncton and New Brunswick Dental Societies was **S. K. Donald**, Moncton, on his retirement from practice. Doctor Donald received an honorary membership in the provincial society.

## In memoriam

### Brig.-Gen. E. M. Wansbrough

Brig.-Gen. Elgin M. Wansbrough, Ottawa, died on December 20, 1970, at the age of 72.

Born in Bowling Green, Ont, General Wansbrough graduated from the Royal College of Dental Surgeons of Ontario in 1923 and then practised in Shelburne, Ont.

A veteran of both world wars, General Wansbrough was awarded the Military Medal for gallantry in action in World War I while serving as a machine gunner. He served as an officer with the Lorne Scots in the interval between the two wars.

Appointed to the Canadian Dental Corps in November 1939, General Wansbrough was command dental officer of No 1 Training Command, RCAF, Toronto, until he went overseas in 1942. He served as assistant director of dental services in the United Kingdom for the Royal Canadian Air Force until 1945.

After returning to Canada, General Wansbrough was appointed deputy director of dental services (air) at National Defence Headquarters and, in 1946, was named director general of dental services for the armed forces. He retired in 1958. Since 1965 he has been colonel commandant of the Royal Canadian Dental Corps.

During his lengthy military career General Wansbrough served in the United Kingdom, Continental Europe, the Middle East and the Far East. In 1945 he was made an Officer of the British Empire and in 1953 was appointed Queen's Honorary Dental Surgeon. He was a fellow of the American College of Dentists and the International College of Dentists.

Besides his wife, Essie, General Wansbrough is survived by two sons, W. A. (Sandy) of Arthur, Ont, and Gordon B. of Toronto; two daughters, Mrs. D. F. Simpson, Whitby, Ont, and Mrs. F. Dworschak, Ottawa; two brothers, Fred A. and W. Frank, both of Toronto; and a sister, Mrs. F. W. Birch, Toronto.

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## L'Association

### L'ADC propose son aide aux dentistes du Québec

L'Association Dentaire Canadienne a offert d'apporter son aide aux dentistes québécois au cours de leurs négociations avec le gouvernement provincial sur l'assurance-maladie.

Au cours de sa session des 24, 25 et 26 novembre, le Conseil Exécutif de l'ADC a examiné les problèmes liés à la mise en place du régime d'assurance-maladie du Québec. Les membres du Conseil se sont déclarés particulièrement inquiets de la portée du Bill 41, qui aurait gravement restreint les droits d'exercice et les libertés civiques des médecins spécialistes du Québec. Le gouvernement de M. Bourassa a abrogé la loi le mois dernier.

Dans une lettre adressée au Dr M. B. Archambault, président du Collège des Chirurgiens-Dentistes de la Province de Québec, le président de l'ADC, le Dr W. J. Spence, se déclare heureux de l'abrogation du Bill 41 et de la reprise des négociations entre le gouvernement et les professions de la santé.

Le Dr Spence souligne également que le Conseil Exécutif est profondément préoccupé de la portée que le Bill 41 comportait pour la profession dentaire au Québec et ailleurs au Canada. Au nom du Conseil, il déclare que l'ADC est prête à aider les dentistes québécois à maintenir les principes de la pratique dentaire que la profession croit conformes à l'intérêt du public et des dentistes.

Le Dr Spence écrit ensuite que l'Association Dentaire Canadienne est pleinement consciente des limitations de sa juridiction quant à la législation provinciale. Cependant, l'ADC se sent autorisée à soutenir les principes professionnels qui ont été approuvés par le Bureau des Gouverneurs à maintes reprises. Si les dentistes québécois pensaient qu'une déclaration publique à ce sujet ou toute autre mesure similaire puisse les aider à l'heure actuelle ou à tout autre moment, l'ADC serait heureuse de leur rendre ce service.

Le Dr Spence désire enfin que sa lettre constitue un nouveau témoignage que l'ADC se soucie et se préoccupe de ce que les Canadiens bénéficient de soins dentaires de la plus haute qualité, dispensés dans un milieu qui reconnaisse les droits civiques et les aspirations des membres de la profession dentaire ainsi que ceux des autres membres de la société, et qu'elle offre de faire tout en son pouvoir pour atteindre ces buts.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 décembre 1970:

*Fonds à revenu fixe* $11.030;

*Fonds d'actions ordinaires* $21.988.

L'avoir total (valeur marchande) du régime se montait à $9,219,681.09.

Au cours du mois précédent, les transactions, achats et ventes, ont été les suivantes: achat 2,000 actions de Boise Cascade Corp et 4,000 actions de Placer Development; vente 3,000 actions de Sante Fé International et 5,000 actions de Zellers Ltd.

Les cotisations au Régime d'épargne-retraite de l'ADC pour l'année fiscale 1970 doivent être versées avant le 28 février 1971. Les sommes reçues après cette date devront compter pour l'anée 1971.

Les lecteurs sont donc priés d'envoyer dans les plus brefs délais leur cotisation directement à: Canadian Dental Service Plans Inc, 230 rue St. George, Toronto 180, Ont.

## Le Congrès national

La réunion annuelle du Bureau des Gouverneurs de l'Association Dentaire Canadienne aura lieu à l'hôtel Château Laurier d'Ottawa, du 27 au 29 septembre 1971. Tous les membres de l'ADC peuvent assister aux séances.

Le congrès national de l'Association Dentaire Canadienne aura lieu du mercredi soir 29 septembre au samedi 2 octobre.

### Aperçu du programme scientifique

Le Dr J. D. Purves, directeur du Congrès national de l'ADC qui se tiendra à Ottawa du 30 septembre au 2 octobre, a annoncé que 10 éminents conférenciers canadiens et américains y participeront. Leurs propos toucheront aussi bien aux derniers progrès de la dentisterie préventive qu'aux opérations préprothétiques et à la dentisterie restauratrice.

Le Dr Sumter S. Arnim, doyen de la Faculté des Sciences Bio-médicales de l'Université du Texas, de Houston, Texas, discutera de la dentisterie préventive pratique dans le cabinet moderne. Le Dr Arnim présentera également une allocution devant la Société Canadienne des Dentistes d'Hygiène Publique.

Le Dr Richard G. Topazian, chef du Service de Chirurgie Buccale au Collège Médical de Géorgie, prononcera une conférence sur les méthodes nouvelles et anciennes en chirurgie préprothétique. Le Dr Topazian, qui est consultant auprès du US Army and Veterans Administration est également membre du comité de rédaction du *Journal of Oral Surgery*. Il parlera également devant la Société Canadienne des Chirurgiens Buccaux. Le Dr William B. Donohue, professeur agrégé de chirurgie buccale à l'Université de Montréal, présentera d'autres exposés touchant la chirurgie buccale en anglais et en français.

Le Dr Joseph L. Bernier, chef du Département de Pathologie Buccale à l'Université Georgetown (Washington), traitera des implants dentaires. Le Dr

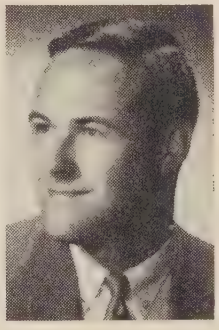
Ronald G. Jones, chef du Département de Prothèse Fixe à l'Université McGill, de Montréal, parlera des nouveautés dans les domaines de l'occlusion, des restaurations céramo-métalliques et des prothèses fixes.

Un groupe de recherche de l'Université McGill de Montréal examinera le rôle actuel des composites dentaires ainsi que les techniques d'insertion et fera une comparaison des matériaux disponibles. Le groupe comprend le doyen, le Dr E. R. Ambrose, et les Drs D. R. Leith, M. Pinchuk et Melvyn Shevell. Le Dr H. W. Gilmore, chef du Service de Dentisterie Opératoire à l'Université de l'Indiana, touchera à divers sujets pratiques en dentisterie opératoire, tandis que le Dr Harry Rosen, professeur agrégé et directeur de l'enseignement post-universitaire en dentisterie de restauration et en prothèse à l'Université McGill décrira des méthodes pour mettre au point une occlusion en porcelaine.

Le Dr R. F. Harvey, chef du Département de Périodontie à l'Université McGill examinera tous les aspects des traitements péridentaires pour l'omnipraticien. Un autre dentiste montréalais, le Dr Berl L. Mendel, traitera de considérations communes à la dentisterie opératoire et à la périodontie. Les Drs Benjamin Sedlezky et B. Harvey Wiener, montréalais aussi, discuteront des nouveaux développements dans le domaine de l'endodontie.

Outre ces conférences, le programme comprendra une série de films scientifiques les plus récents et un séminaire spécial d'une demie journée auxquels des experts participeront sera consacré à l'occlusion.

Harry Rosen



H. W. Gilmore

### Les réunions de promotions sont fixées au 30 septembre

La soirée du jeudi 30 septembre a été laissée libre pour les dentistes qui participeront au Congrès national de l'ADC, qui aura lieu du 30 septembre au 2 octobre à Ottawa.

Les lecteurs qui désireraient arranger une réunion de leur promotion pour cette soirée là sont invités à écrire, en précisant leurs besoins, à M. G. V. Allen, Congrès national 1971 de l'ADC, B.P. 147 (400), Malton, Ont.

## Le Canada

### Le président de l'ADC appuie la campagne de souscription contre le cancer

Le Dr W. J. Spence, président de l'ADC, a publié une déclaration en faveur de la campagne de souscription de la Société Canadienne du Cancer. La campagne a lieu en avril, désigné comme le mois de la lutte contre le cancer.

Le Président Spence voit dans la Société Canadienne du Cancer un allié qui partage nos efforts pour une meilleure santé bucco-dentaire dans tout le Canada. Il a fait l'éloge des sept précautions que la société recommande aux Canadiens. L'une d'elles conseille au public de faire examiner par un dentiste tout état anormal qui pourrait être découvert dans la bouche.

### Nouvel appel du Président Spence en faveur de l'affiliation conjointe volontaire

Le Dr W. J. Spence, président de l'ADC a de nouveau recommandé aux dentistes et à leurs organismes locaux et provinciaux d'étudier la mise en place d'un système de cotisation volontaire qui permettrait aux organisations provinciales et à l'association nationale de recevoir suffisamment de capital pour remplir leurs fonctions actuelles et pour éventuellement assumer d'autres responsabilités que leurs membres et la société exigent d'elles.

Le Dr Spence parlait à l'occasion d'un déjeuner offert par le Toronto Academy of Dentistry le 26 novembre.

Le président de l'ADC a déclaré que les professions libérales ont été libres de gouverner leurs propres membres tant que l'intérêt public semblait protégé, mais que cette "protection du public" est maintenant mise en question et par les gouvernements et les commissions spéciales ainsi que les média et le public.

Les cotisations versées aux associations professionnelles, disent-ils, ne devraient pas faire partie des droits de licence prélevés par les organismes de réglementation professionnelle dont l'objectif premier est la protection de l'intérêt public. Ils demandent que les organismes de réglementation et les associations professionnelles soient séparés et que l'inscription aux ordres professionnels demeure obligatoire tandis que l'affiliation aux associations deviendrait absolument volontaire et individuelle.

Une séparation à l'amiable entre les ordres professionnels et les associations ne semble pas être un problème épineux, a poursuivi le Dr Spence. Il est très probable que la profession effectuera ce changement sans que le gouvernement l'y incite davantage. En fait, c'est la direction que les dentistes d'une province sont déjà en train de prendre. Ils examinent la possibilité de séparer les frais de licence des droits d'association. Il semble que ce ne soit qu'une question de temps pour qu'une profession éclairée comme la nôtre adopte ce changement à travers tout le Canada, bien avant qu'aucune loi ne nous y oblige, a-t-il ajouté.

Mais le Dr Spence a souligné que des affiliations séparées aux associations provinciales et à l'association nationale risqueraient de disloquer l'organisation de la profession. L'ADC a par conséquent approuvé une forme d'affiliation conjointe individuelle et volontaire. Elle comprend les sociétés locales ainsi que les associations provinciales et l'association nationale. Chacune serait une partie composante de l'autre. L'organisme national a aussi invité les membres corporatifs à approuver ce principe et a demandé au Conseil de la constitution et des règlements de rédiger une clause prévoyant à la fois les affiliations actuelles et conjointes. Cette clause sera mise aux voix lors du congrès national de l'ADC en septembre.

"Le séparatisme n'a pas plus sa place dans la profession dentaire canadienne que dans la politique canadienne", a déclaré le président de l'ADC. "Au lieu d'une âpre rivalité, les organismes provinciaux et l'association nationale devraient manifester la coopération qui existe entre associés dans l'intérêt de tous les dentistes canadiens et de tous les Canadiens".

### Les futurs dentistes du Québec devront connaître le français

Le gouvernement du Québec a déposé un projet de loi qui imposerait aux immigrants désireux d'accéder à 19 professions – dont l'art dentaire – de posséder une connaissance d'usage du français.

Ce projet de loi a pour but de favoriser l'intégration des immigrants à la majorité francophone de la province.

Le projet de loi n'obligerait pas les immigrants à s'intégrer au milieu français mais rendrait pratiquement impossible aux professionnels n'ayant pas une connaissance d'usage du français de s'établir dans la province. Le projet de loi protège cependant les droits acquis des personnes qui ont déjà été admises par une corporation.

Le projet de loi supprimerait également l'obligation d'être de citoyenneté canadienne pour avoir accès à certaines des corporations et des associations visées. Il stipule simplement que l'immigrant doit déposer sa demande de citoyenneté dans les délais minima prévus par la loi.

## Sur la colline parlementaire

### "Limiter les pratiques restrictives des sociétés professionnelles"

L'autorisation d'exercer dans les professions libérales a été débattue à la Chambre des Communes le 2 décembre lorsque M. A. B. Sulatycky (Lib–Rocky Mountain) a interrogé le gouvernement pour savoir ce que ce dernier faisait "pour limiter les pratiques restrictives des organismes professionnels tels que les sociétés dentaires, légales et médicales, afin que tous les Canadiens puissent disposer de services professionnels à un prix raisonnable".

M. Ron Basford, ministre de la Consommation et des Corporations a répondu que le Conseil Economique du Canada avait recommandé que la loi relative aux cartels soit étendue aux services, y compris ceux des professions libérales. En préparant la révision de cette loi, a-t-il dit, le gouvernement tiendra compte des recommandations du Conseil Economique.

## Chronique internationale

### Possibilité de frais dentaires supplémentaires en Grande-Bretagne

Des modifications aux dépenses publiques touchant au Service National de la Santé de Grande-Bretagne risquent d'affecter les soins dentaires.

Dans un livre blanc déposé le 27 octobre dernier, le gouvernement a annoncé son intention de mettre en place une échelle d'honoraires pour les services dentaires.

Les frais représenteront environ la moitié du coût des services fournis, à l'exception des examens dentaires qui continueront d'être gratuits. Le livre blanc propose également d'abaisser, en temps opportun, l'âge limite d'exonération pour les jeunes de 21 à 18 ans.

L'Association Dentaire Britannique s'est élevée contre ces propositions qui, dit-elle, auraient pour effet de détourner la population des soins dentaires et constituent donc une grave menace envers la santé dentaire des Britanniques.

### XXIIe Congrès Français de Stomatologie

Le XXIIe Congrès Français de Stomatologie aura lieu à Lyon du 13 au 17 octobre 1971.

Le programme préliminaire comprend: (1) L'ankylose de l'articulation temporo-maxillaire et son traitement; (2) Endocardite bactérienne d'origine dentaire; (3) Prothèse maxillo-faciale: (a) hier, aujourd'hui et demain – (b) la prothèse maxillo-faciale dans le traitement de l'ankylose de l'articulation temporo-maxillaire; (4) Deux tables rondes sur: (a) les ostéoplasties dans le traitement des fissures labio-alvéolaires congénitales – (b) les implants métalliques: la situation actuelle.

Pour plus de renseignements, veuillez écrire au Docteur P. Chikhani, 47 Boulevard de l'Hôpital, Paris 13e, France.

## Les organismes dentaires

### Récentes décisions du Bureau des Gouverneurs de l'ADO

Les décisions du Bureau des Gouverneurs de l'Association Dentaire de l'Ontario, qui s'est réuni les 4 et 5 décembre, ont porté principalement sur l'affiliation conjointe volontaire, la cotisation, les régimes dentaires conventionnés et les honoraires.

Le Bureau de l'ADO a approuvé le principe de l'affiliation conjointe individuelle et volontaire aux organismes dentaires locaux et provinciaux et à l'association nationale et il a décidé de créer un comité spécial chargé de formuler les conditions selon lesquelles l'ADO conviendrait d'un arrangement conjoint volontaire avec l'Association Dentaire Canadienne. Le Bureau a demandé au comité de veiller particulièrement à préserver le droit des membres de l'ADO de continuer à participer aux régimes d'assurance et programmes connexes.

Les membres de l'ADO seront invités à payer une cotisation supplémentaire volontaire de $50 en 1971 afin de combler le déficit de trois années consécutives (1969-1971) et de fournir des fonds de roulement additionnels.

Le Comité des services dentaires de l'ADO a reçu l'autorisation d'organiser un service consultatif sur les régimes conventionnés d'assurance dentaire à l'intention du public et des compagnies d'assurances. Le Bureau a également adopté une résolution déconseillant aux dentistes de participer par contrat aux régimes d'assurance conventionnés qui n'ont pas reçu l'approbation de l'ADO.

Les gouverneurs de l'ADO ont par ailleurs:

1. voté l'augmentation de 7 à 7.5 du facteur de conversion du tarif des honoraires de l'ADO à compter du 31 mars;

2. été informés qu'un groupe sécessioniste de techniciens dentaires ontariens cherche à obtenir des avantages semblables à ceux des denturologistes;

3. condamné le Bill 41 qui visait à forcer les médecins spécialistes du Québec à reprendre le travail;

4. réélu le Dr W. C. Deacon, d'Ottawa, au Conseil exécutif de l'ADO.

## L'enseignement dentaire

### Bourse Warner-Lambert pour le perfectionnement des enseignants

M. M. E. Bower, président du conseil d'administration du Fonds Canadien pour l'Enseignement Dentaire, annonce la création d'une bourse annuelle de $1,500 destinée au perfectionnement des professeurs et instituée grâce à une contribution de la compagnie Warner-Lambert Canada Ltée.

M. Bower a déclaré que cette bourse annuelle permettrait à un professeur exerçant déjà dans une faculté dentaire canadienne de perfectionner et d'approfondir ses connaissances dans un domaine de l'enseignement dentaire.

Depuis 1963, le Fonds a attribué 83 bourses de perfectionnement, soit un total de plus de $140,000 pour aider des dentistes à devenir professeurs ou chercheurs. M. Bower a fait remarquer que cette bourse est la première qui soit offerte en vue du perfectionnement des professeurs déjà en exercice et qu'elle représente une autre mesure importante de la part du Fonds en vue de promouvoir l'enseignement et la recherche dentaire.

## La fluoration

### Les banlieues de Montréal réclament la fluoration

La Ville de Montréal devra approuver la fluoration si elle désire amener l'eau potable aux banlieues qu'elle ne dessert pas encore.

Réunis en conférence à Saint-Laurent le 12 novembre dernier, 28 maires de l'île de Montréal membres de la Communauté Urbaine de Montréal ont défini les conditions auxquelles la Ville de Montréal pourrait assumer la distribution de l'eau à la CUM.

Les banlieues qui reçoivent actuellement leur eau de Montréal réclament l'adoption de la fluoration par la métropole.

M. Arthur Séguin, maire de Pointe Claire, a déclaré qu'il n'en coûte à sa communauté que $20 par an pour fluorer son eau. Celle-ci est également distribuée à Dollard-des-Ormeaux, Beaconsfield, Baie d'Urfé et Kirkland, soit un total de 60,000 personnes.

L'investissement initial pour l'outillage à Pointe Claire n'a été que de $7,000. Les autorités fédérale et provinciale contribuent actuellement à défrayer les coûts d'installation.

### Victoires et défaites

En Ontario, la fluoration a été adoptée, le 7 décembre, par les électeurs de Sar-

nia et de Georgetown, mais rejetée par ceux de Trenton et de Sault Ste-Marie. Le conseil municipal de Hawkesbury a décidé par arrêté de faire débuter la fluoration en janvier 1971. Les habitants de Blind River ont décidé de maintenir cette mesure dont ils bénéficient depuis janvier 1966.

Dans la province de Québec, Sainte-Foy, dans la banlieue de la ville de Québec, prévoit également de fluorer son service d'eau.

### Dakota du Sud: vote en faveur de la fluoration obligatoire

Les électeurs du Dakota du Sud ont approuvé la fluoration au cours du premier référendum sur ce sujet à l'échelle d'un état.

On avait demandé aux électeurs d'annuler une loi datant de 1969 qui rendait la fluoration obligatoire.

Sept états américains possèdent une loi sur la fluoration. Outre le Dakota du Sud, ce sont le Minnesota, l'Illinois, le Michigan, le Connecticut, le Delaware et l'Ohio.

Si la fluoration avait été rejetée, de nombreuses villes qui venaient de fluorer leur service d'eau, pour respecter la date limite imposée par la loi, auraient dû les défluorer.

## L'hygiène publique

### Etude de quatre ans sur la dispensation des soins aux enfants d'âge préscolaire

Un premier groupe de 1,000 enfants âgés de trois ans participeront à une étude-pilote sur les soins dentaires cumulatifs. L'étude doit débuter bientôt dans le Comté de Waterloo, dans le sud-ouest de l'Ontario.

Les résultats de l'étude, qui doit durer quatre ans, indiqueront la façon d'élaborer un régime dentaire à l'échelle de la province et d'en évaluer le coût et les effectifs nécessaires pour dispenser les soins initiaux et les soins d'entretien jusqu'à l'âge de quatre et cinq ans.

Deux groupes de 1,000 enfants seront inclus dans l'étude au cours de deux années successives.

Le projet prévoit un premier examen de dépistage, des radiographies "bite-wing", l'enseignement et la démonstration de soins dentaires préventifs, une application topique de fluorure ainsi que les soins dentaires nécessaires tels qu'obturations, extractions et maintien d'espace.

Les parents pourront obtenir des conseils dans les cas particuliers liés aux traitements orthodontiques, endodontiques et périodontiques. Tous les services seront gratuits pour le groupe initial.

Le personnel dentaire de l'unité d'hygiène du Comté de Waterloo dispensera l'examen initial et les conseils d'hygiène dentaire pour tous les participants.

Dans certains cas, le personnel effectuera également les radiographies et les applications de fluorure. Le traitement sera complété par les dentistes locaux.

L'étude est confiée aux Drs M. E. Jarrett, directeur dentaire de l'unité d'hygiène du Comté de Waterloo, et D. W. Lewis, professeur agrégé et chef du Département d'Hygiène Dentaire Publique de la Faculté de Chirurgie Dentaire de l'Université de Toronto. Quatre membres de la Société Dentaire de Waterloo-Wellington serviront comme conseillers.

## La recherche

### L'ADA signale que les dentifrices abrasifs peuvent endommager les dents

L'Association Dentaire Américaine a rendu publiques les conclusions d'une étude selon laquelle certains dentifrices trop abrasifs pourraient attaquer l'émail dentaire de ceux qui se brossent trop énergiquement les dents.

Un rapport du Conseil de la thérapeutique dentaire publié dans le numéro de novembre du *Journal de l'Association Dentaire Américaine* déclare que l'étude avait pour but de fournir au praticien des renseignements exacts sur l'abrasivité des dentifrices américains, qui lui permettront de conseiller le patient sur le genre de pâte à employer.

Un dentifrice ne doit avoir que l'abrasivité requise pour garder les dents propres, c'est-à-dire libres de plaques accessibles, de débris et de taches superficielles. Le degré d'abrasivité requis pour obtenir cet effet peut varier considérablement d'un individu à l'autre, selon l'article.

Les dentifrices que l'on a trouvés les moins abrasifs étaient T-Lak, Thermodent, Listerine et Pepsodent. Les plus abrasifs étaient Smokers' Tooth Paste (Walgreen), Iodent No 2, Sensodyne (Block Drug) et Vote (Bristol-Myers).

### Le laser peut être employé pour souder les prothèses

Selon un expert du laser dentaire, la soudure au laser pourrait un jour remplacer la soudure traditionnelle des ponts et autres appareils dentaires. Le Dr T. E. Gordon, d'Orlando (Floride), affirme que la soudure au laser présente l'avantage de faire gagner beaucoup de temps auprès du patient et en laboratoire et d'obtenir une adaptation précise de la prothèse partielle fixe.

Lors du congrès scientifique de l'Association Dentaire Américaine en novembre dernier, le Dr Gordon a déclaré que l'on a trouvé une nouvelle application pratique au laser, dans la soudure autogène de précision des prothèses dentaires partielles fixes.

Le procédé par laser peut réduire à quatre minutes environ le temps nécessaire à la fabrication d'un joint pour l'appareil, ce qui, avec les méthodes actuelles les plus brèves, demande plus d'une heure. Ce procédé peut permettre au dentiste d'essayer la prothèse partielle aux divers stades de sa construction et d'effectuer la soudure finale en laboratoire en quelques minutes afin de mettre l'appareil en place dans la bouche du patient sans attendre un autre rendez-vous.

Ce procédé permet donc au dentiste, au cours de la même visite du patient, de vérifier l'adaptation de l'appareil dans la bouche et ensuite d'effectuer la soudure de la prothèse en quelques minutes. Le procédé au laser réduit les déformations causées par le refroidissement inégal du métal et le rétrécissement de la soudure.

### Le bruxisme affecte les dents, les gencives et les muscles faciaux

Les personnes qui serrent les dents dans leur sommeil ou au cours d'un "affrontement", peuvent endommager leurs dents, leurs gencives, les muscles de la mâchoire et l'articulation temporomandibulaire, selon un chercheur dentaire suisse.

Les causes premières du bruxisme semblent se trouver dans des modifications de l'activité nerveuse centrale qui se manifestent dans le sommeil, les états de tension nerveuse ou les situations conflictuelles. Le bruxisme s'observe dans de vastes portions de la population et dans tous les groupes d'âge, déclare le Dr Peter Schaerer de Berne (Suisse).

S'adressant au congrès scientifique de l'Association Dentaire Américaine en novembre dernier, le Dr Schaerer a dit que des études psychologiques ont démontré que les sujets souffrant de bruxisme présentent fréquemment des troubles émotifs tels que peur ou aggressivité, irritabilité et tension nerveuse excessives. Cependant, du point de vue psychiatrique, ces sujets sont considérés comme normaux.

Puisque le dentiste peut rarement traiter les aspects du bruxisme reliés au système nerveux central, il doit essayer d'en diminuer le risque de détérioration des structures buccales.

Les symptômes de bruxisme énumérés par le Dr Schaerer sont des modifications des tissus péridentaires pouvant conduire à une plus grande mobilité des dents. Le grincement continu des dents peut aussi déranger leur

alignement et provoquer des douleurs dans l'articulation temporo-mandibulaire, dans les muscles masticateurs et autres muscles faciaux.

Le traitement d'un patient atteint de bruxisme doit viser à étaler les forces d'occlusion de la bouche sur toutes les surfaces de contact afin de réduire le degré d'attrition des dents.

## L'encombrement dentaire pourrait provoquer des affections du parodonte chez l'enfant

Les affections du parodonte, que l'on considère d'ordinaire comme un problème d'adulte, se manifestent souvent chez les enfants, surtout chez ceux dont les dents se chevauchent et ceux qui subissent un traitement orthodontique.

Lors du congrès scientifique de l'Association Dentaire Américaine en novembre dernier, le Dr J. D. Subtelny, de Rochester (New York), a déclaré que "le traitement orthodontique est très souvent entrepris à un âge où les enfants semblent très négligents pour adopter et conserver de bonnes habitudes d'hygiène buccale". Il a mentionné des études cliniques qui ont révélé que les enfants atteints de troubles orthodontiques accusent une susceptibilité accrue aux altérations du parodonte.

Etant donné que la gravité et la fréquence des affections du parodonte augmentent avec l'âge, il vaudrait mieux commencer les corrections orthodontiques plus tôt dans des groupes d'âge qui possèdent des possibilités optimales de rétablissement tissulaire et où il est plus facile de prévenir les affections chroniques, a-t-il dit.

A propos de la relation entre les traitements orthodontiques et péridentaires, le Dr Subtelny a fait remarquer que le traitement orthodontique lui-même peut apporter des conditions artificielles qui favorisent l'évolution de la destruction du parodonte.

Le déplacement des dents au cours du traitement orthodontique impose un gros effort aux tissus gingivaux. Les tissus péridentaires sains ne sont pas endommagés par cette mobilité des dents. Cependant une mauvaise hygiène buccale entraîne le risque d'une perturbation des tissus du parodonte, a-t-il dit.

## La greffe osseuse pourrait être utile aux patients présentant des problèmes de prothèse

Un chirurgien buccal de l'Université de la Californie a exposé une technique de greffe osseuse utilisant un implant métallique, qui pourrait être profitable aux patients présentant des problèmes de prothèse. Le Dr P. J. Boyne, de Los Angeles a déclaré que cette méthode avait été employée avec succès chez 10 patients, où l'on a obtenu la régénération de l'os greffé et l'acceptation par le foyer-hôte.

Parlant lors d'une réunion scientifique du congrès de l'Association Dentaire Américaine en novembre dernier, il a déclaré que cette technique peut être profitable aux patients qui ne tolèrent qu'avec de grandes difficultés les prothèses inférieures, à cause de la résorption osseuse de la crête alvéolaire.

La méthode utilise un implant métallique recouvert d'une membrane-filtre. Le filtre permet le passage des liquides tissulaires mais empêche le tissu cicatriciel de pénétrer dans la zone de greffe et d'entraver la réussite de la régénération osseuse de la partie greffée.

L'implant métallique renfermant le greffon est fixé au maxillaire inférieur du patient au moyen de vis métalliques, puis l'implant est entièrement recouvert de couches de tissus mous.

Les implants ont été retirés huit à 10 semaines après l'opération et l'on a immédiatement fabriqué des prothèses pour les patients. Lors du retrait de l'implant, on a observé que la régénération de l'os selon la hauteur et le contour délimités par l'implant métallique avait été obtenue dans tous les cas.

On a prévu de poursuivre l'évaluation à long terme de ces patients afin de déterminer si les crêtes alvéolaires ainsi restaurées subiront une résorption, et de définir pendant combien de temps les régions reconstruites conserveront leur hauteur rétablie sous l'action de la prothèse. Les résultats cliniques ont été jusqu'à présent des plus encourageants.

## Prothèses partielles pour les jeunes accidentés

Un prosthodontiste de Los Angeles recommande l'emploi de prothèses partielles amovibles chez les adolescents qui ont perdu des dents accidentellement ou par suite d'affections congénitales. Le Dr F. J. Kratochvil pense que l'on peut normalement fabriquer des prothèses partielles pour les adolescents et les préadolescents en partant des mêmes principes employés pour les patients de tous les âges atteints d'affections semblables.

Il existe, cependant, des cas qui demandent une attention particulière lors d'un traitement à l'aide de prothèses amovibles. Il s'agit des cas d'affections congénitales, de lésions accidentelles avec perte de tissus de soutien et des cas de denture mixte.

Le Dr Kratochvil, qui parlait lors d'une réunion scientifique de l'Association Dentaire Américaine en novembre dernier, a déclaré que les affections congénitales se divisent d'ordinaire en deux catégories: les anomalies des dents et les anomalies de développement ou de position des tissus de soutien.

Ces deux catégories nécessitent habituellement la conservation de la structure dentaire restante, le remplacement d'une partie des tissus de soutien, ainsi que la restauration des couronnes cliniques des dents afin de maintenir l'esthétique et la position correcte du maxillaire inférieur par rapport au supérieur, a-t-il dit.

Les blessures faciales dues aux accidents comportent souvent la destruction d'une partie de l'arcade dentaire et des dents, ainsi que d'une partie des tissus de soutien.

L'hygiène buccale doit être examinée régulièrement et systématiquement par le dentiste, et le patient doit recevoir des instructions complètes sur les soins à apporter aux tissus et à la prothèse. "Il se peut qu'une prothèse amovible convenablement construite constitue le traitement de choix pendant plusieurs années après l'accident, jusqu'à ce que les tissus de soutien et les pulpes dentaires se développent complètement", a-t-il ajouté.

## Des bactéries buccales spécifiques à l'origine de la carie

La carie et les maladies péridentaires ont pour origine des bactéries buccales bien déterminées qui forment des colonies sur les dents lorsque certaines substances sont présentes dans la bouche, selon un chercheur du US National Institute of Dental Research. Ces bactéries deviennent particulièrement actives dans la bouche en présence d'aliments producteurs de dextran.

C'est au cours d'une réunion scientifique, lors du congrès de l'Association Dentaire Américaine en novembre dernier, que le Dr P. H. Keyes, de Bethesda (Maryland) a parlé du rôle des bactéries dans la formation de la carie et des maladies péridentaires. Il a déclaré que si certaines bactéries essentielles formant des colonies ne sont pas présentes ou si leur activité est entravée, la colonisation ne se produit pas. On observe également que certains états buccaux sont particulièrement favorables à la colonisation et à la formation de masses bactériennes. Un mauvais fonctionnement des glandes salivaires, un régime à teneur élevée en hydrates de carbone et la fréquence de l'alimentation sont autant de facteurs contribuants, soit à la formation de masses bactériennes, soit aux diverses lésions qui leur sont associées.

A propos des moyens visant à habituer le public à une bonne hygiène buccale, surtout en vue de maîtriser la maladie péridentaire, le Dr Keyes a déclaré que "la mode est aujourd'hui au sale, au rude et au grossier". Au lieu d'insister sur la propreté, le Dr Keyes propose donc de présenter le problème de "l'infection" comme motif principal pour entretenir la propreté de la bouche.

# Longitudinal root fracture due to corrosion of an endodontic post

**K. B. Petersen, DDS**
**London, Ont**

*Longitudinal root fracture occurred in a maxillary bicuspid and molar which had been restored 22 years earlier with stainless steel posts, amalgam cores and cast gold crowns. The breaks are attributed to a prolonged electrolytic reaction between the dissimilar post and core metals. The products of this reaction, deposited in the root canal, presumably induce a volumetric change and cause the root to fracture longitudinally. Such corrosion fractures, the author suggests, may become more frequent with the influx of Europeans whose teeth have been restored with stainless steel posts and amalgam cores.*

*Des fractures longitudinales de la racine se sont produites dans une prémolaire et une molaire supérieures restaurées 22 ans plus tôt à l'aide d'un pivot en acier inoxydable, d'un noyau en amalgame et d'une couronne en or coulée. Les fractures sont attribuées à une réaction électrolytique prolongée entre les métaux différents des pivots et des noyaux. On suppose que les produits de cette réaction sont déposés dans le canal de la racine et provoquent un changement volumétrique qui fracture la racine longitudinalement. L'auteur estime que ces fractures dues à la corrosion risquent de devenir plus fréquentes avec l'arrivée d'Européens dont les dents ont été restaurées au moyen de pivots en acier inoxydable et de noyaux en amalgame.*

The shortage of precious metals during and after the second world war induced European dentists to use stainless steel as a post material in combination with a core of cast low-fusing alloy or amalgam for restoring non-vital teeth.

In 1955-6 Danish dentists began to report root fractures which they ascribed to corrosion of the post in endodontically treated teeth.[1, 2] The phenomenon has lately been evaluated by Jorgensen and Saito[3] and by Angmar-Mansson et al.[4] They postulate that the difference in potential between the two metals of the post and core produced an electrolytic effect resulting in corrosion. The products of corrosion, deposited in the root canal over an extended period of time, would cause sufficient volumetric change to fracture the root in a longitudinal direction.

Corrosion fractures are rarely observed in Canada where posts and cores are commonly made of gold. They may, however, become more frequent with the influx of Europeans to this country. The following case report is intended to alert readers to this fact.

## Case report

The patient, a dentist, received endodontic treatment for the right maxillary first bicuspid and second molar in 1949. The teeth were restored with stainless steel posts, amalgam cores and cast gold crowns.

A radiograph 19 years later (1968) disclosed a radiolucent zone in the periapical region of the first bicuspid. A bridge extending from the first molar to the first bicuspid was removed at this time and the molar was extracted because of periodontal involvement. An apicoectomy was then performed on the bicuspid. During the latter procedure a slight fracture line was seen at the root apex. The patient was informed, but he consented nevertheless to the construction of a bridge from the first bicuspid to the second molar.

Two years later (1970) an abscess developed in association with the lingual root of the second molar. A radiograph (Fig 1) showed a fracture of the post but no root fracture. Nevertheless, we speculated about a possible corrosion fracture and amputated the root. Our suspicions were verified by a complete longitudi-

nal fracture of the root and typical discoloration of the dentine from the corrosion products.

Three months later the patient experienced further symptoms from the maxillary second molar. Radiographs at this time revealed extensive bone destruction around the distobuccal root (Fig 2). A root fracture of the first bicuspid with gross displacement of one fragment was also observed (Fig 3). The bridge and teeth were therefore removed.

Figure 4 shows the first bicuspid viewed from the buccal aspect with the fragments replaced. The longitudinal fracture line is quite evident. Figure 5 is a view of the tooth from above.

An oblique fracture of the mesiobuccal root of the second molar is depicted in Figure 6. Since there was no post in this root, this break may be an extension of the corrosion fracture of the lingual root. It was not visible radiographically (Fig 1, 2) or during amputation of the lingual root.

Figures 7 and 8 illustrate discoloration of the bicuspid and molar. The actual colour varies from dark green to black. The fragments are being analysed at the University of Western Ontario to determine the components of the corrosion deposits.

## Discussion

A corrosion fracture can be quite asymptomatic; on the other hand, it may give rise to periodontal pain. Gingival swelling and periodontal abscess with or without pocket formation may be noted, and the affected tooth may become sensitive to longitudinal or transverse percussion.

The radiographic findings are likewise variable. At first there may be no sign of a break if the axis of the x-ray beam and the fracture do not coincide, or if the opacity of the treated root canal obscures the fracture. On the other hand, there may be a radiolucent area at the middle of the root, or complete bony destruction around the root. Gross displacement of the root fragments is seen in some cases.

Identification of a corrosion fracture, though sometimes difficult, should be suspect in a non-vital tooth with a post and core and showing the aforementioned symptoms. Such fractures must be differentiated from trauma, traumatogenic occlusion, root perforation, infected lateral canals, apical rarefying osteitis and periodontal abscess. The absence of a history of a blow to the tooth and the direction of line of fracture would rule out trauma. Traumatogenic occlusion is more

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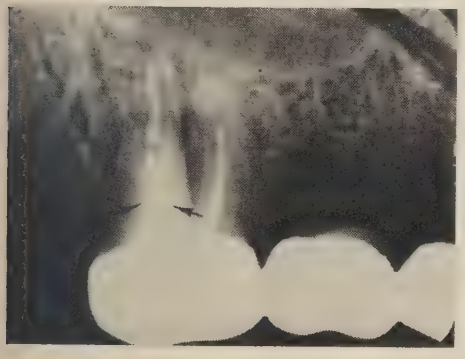

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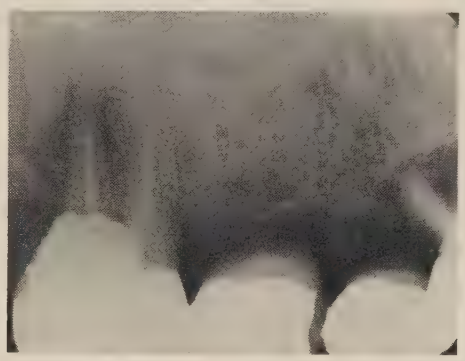

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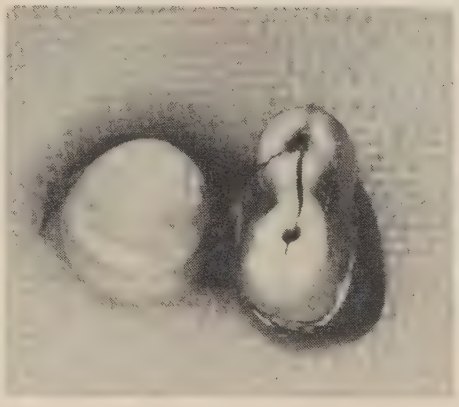

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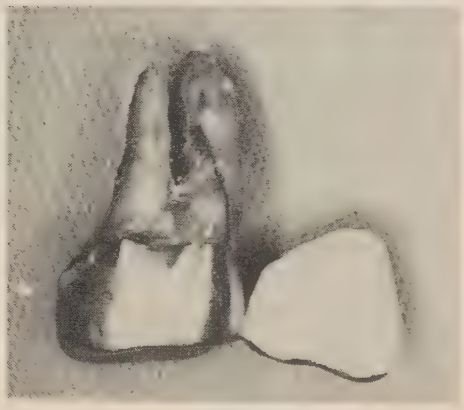

Fig 1 Radiograph showing fractured post in the lingual root of the right maxillary second molar.

Fig 2 Radiograph showing extensive bone destruction around the distobuccal root of the right maxillary second molar. The lingual root had been amputated three months previously.

Fig 3 Radiograph showing a displaced root fragment of the right maxillary first bicuspid.

Fig 4 Buccal view of the extracted first bicuspid with the root fragments replaced. Note the vertical fracture line.

Fig 5 Apical view of the tooth in Figure 4.

Fig 6 Buccal view of the extracted second molar shows an oblique fracture line in the mesiobuccal root.

Fig 7 Discoloration of the root of the first bicuspid.

Fig 8 Discoloration of the second molar.

likely to cause buccal or lingual alveolar bone recession. Root perforations and infected lateral canals can result in rarefying osteitis at the side of a tooth and may be confused, clinically and radiologically, with an early corrosion fracture. When the break is near the apex, the radiographic appearance may be indistinguishable from apical rarefying osteitis. Corrosion fracture should be considered when rarefying osteitis is seen in the middle of a tooth root but there is no radiographic evidence of periodontal disease.

Corrosion fractures may become more frequent for the reasons already noted. It is also possible that some recently introduced prefabricated posts and cores and stainless steel pins may ultimately corrode, causing root fracture. Prompt recognition will ensure correct treatment, which is the removal of the affected teeth.


**Summary**

A case of root fracture in two endodontically treated teeth is reported. The genesis and treatment of this condition is also described.



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*Applications for CFDE's teacher/researcher fellowships* — The Canadian Fund for Dental Education is now accepting applications for 1971-72 teacher/researcher training fellowships. Applications must be filed before April 1. Forms and additional information may be obtained from the dean's office in any Canadian dental school or the Canadian Fund for Dental Education, 234 St. George St, Toronto 180, Ont.

Candidates must have completed the undergraduate course in dentistry or a program in science and be eligible for admission to a graduate school. Four considerations will operate in selecting applicants: academic record, qualifications for teaching/research, future plans for teaching/research, and personal attributes. Preference will be given to applicants who produce evidence that they will return to a teaching/research post in a Canadian faculty of dentistry. The appointment must entail more than half-time employment.

Each fellowship is for one year of study at the graduate level and may be renewed for subsequent years if progress is satisfactory.

Applicants must declare their firm intention to become teacher/researchers in a Canadian faculty of dentistry. The minimum commitment will be one year of full-time service or two years of half-time service for each year the applicant receives aid.

The value of the fellowship will vary according to the cost of the study program, the applicant's resources and those of the Fund. A full fellowship should be adequate for travel, tuition and other university costs and, where possible, to assist in the provision of living costs.

CFDE fellowship awards do not constitute income of the recipient dentist for income tax purposes.

All fellowship applications will be reviewed by a committee under the chairmanship of W. H. Feasby of the University of Western Ontario. Other members of the committee are: R. C. Burgess and H. A. Hunter of the University of Toronto, and Jean Nadeau of the University of Montreal.

# A postanaesthetic complication due to inadvertent use of medication:

## Report of case

**L. I. Gaum, DDS**
**Toronto**

*A protective ophthalmic ointment was applied to a patient's eyes after the successful induction of general anaesthesia for oral surgery. Cycloplegia and paralysis of the sphincter oculi developed in the left eye following successful completion of the dental operation. Fourteen days elapsed before normal vision was restored. The ointment used in this case came from two identical tubes with similar labels, but the second tube was later found to contain atropine rather than boric acid. Doctor Gaum stresses the importance of verifying all markings and labels before administering any form of medication.*

*Un onguent ophtalmique protecteur fut appliqué sur les yeux d'un patient après induction de l'anesthésie générale en vue d'une intervention buccale. Lorsque l'opération dentaire eut été menée à bien, une cycloplégie et une paralysie du sphincter oculaire apparurent dans l'oeil gauche. La vision normale ne fut pas recouvrée avant 14 jours. L'onguent utilisé provenait de deux tubes identiques aux étiquettes semblables, mais on découvrit ensuite que le second tube contenait de l'atropine au lieu de l'acide borique. Le Dr Gaum souligne l'importance de vérifier les étiquettes et les inscriptions avant d'administrer toute forme de médicament.*

The importance of correct labelling of therapeutic agents is self-evident. Labels and markings should be carefully examined before administering any drug. If a container is improperly labelled, it should be discarded. The failure to observe these elementary precautions can result in accidents as illustrated by the following case report.

### Case report

A 22 year old bus driver with rampant dental caries and advanced periodontal disease was admitted as an outpatient for the extraction of all his teeth. The physical examination revealed no other abnormalities. The blood pressure was 130/80 sitting and 140/80 lying.

Meperidine (Demerol) 100 mg and atropine 0.6 mg were given intramuscularly one hour before the operation commenced. Placing him supine on the operating table, 500 ml of lactated Ringer's Solution were administered by slow intravenous drip through a 21 gauge needle into the left hand.

Induction of anaesthesia was accomplished with sodium thiopental 360 mg and succinylcholine 80 mg. The patient was then intubated with a No 8 cuffed nasotracheal tube. The desired level of anaesthesia was maintained with nitrous oxide, halothane and oxygen. The anaesthetist also applied an ophthalmic ointment into both eyes to protect them from injury during the operation.

An aqueous solution of benzalkonium chloride (Zephiran) was applied to the face and mucosa and the patient was draped in preparation for the operation. The teeth were extracted and alveolectomies were performed. No difficulties or complications were encountered during the operation or from anaesthesia.

The operation ended 50 minutes after the induction of anaesthesia. The patient was then extubated and taken to the recovery room fully conscious and in excellent condition. His blood pressure at this point was 128/80 and the pulse rate was 80.

One hour later he began to complain of blurred vision in the left eye. The cornea, conjunctiva and optic nerves of both eyes appeared to be normal. The right pupil displayed normal constriction and dilatation in response to light stimulation, but the left pupil

was widely dilated and showed no accommodation whatever.

It was concluded that this was a case of paralysis of the sphincter oculi (of the iris) with cycloplegia (paralysis of the ciliary muscles of the crystalline lens) inhibiting accommodation to near objects.

Benzalkonium chloride solution accidentally introduced into the eye can provoke a severe conjunctivitis but not the response described here. Further inquiry disclosed that the ophthalmic ointment applied to the right eye came from a partly used tube that was subsequently discarded. The label on this empty tube bore the inscription "Boric Acid 10 per cent." A new tube was used for the left eye. The two tubes had identical amber coloured labels and both tubes were of similar size, but the second tube contained "Atropine Sulphate 1 per cent" instead of boric acid.

## Discussion

Atropine is primarily used for premedication prior to general anaesthesia, usually in combination with a narcotic or a barbiturate. A parasympatholytic agent, it inhibits reactions produced by parasympathetic stimulation which it annuls by acting directly on the effector cells at the terminal ends of the parasympathetic postganglionic fibres. It renders these cells insensitive to the action of acetylcholine. Thus it inhibits the secretory glands in the oral and nasal passages and of the tracheobronchial tree, and relaxes the smooth muscles of the trachea and bronchi.

Atropine paralyses the sphincter oculi, causing dilatation of the pupil. It also paralyses the ciliary muscle of the crystalline lens, causing cycloplegia. Atropine is available in liquid form for parenteral injection, as tablets and as an ophthalmic ointment.

Because of the quantity applied directly to our patient's left eye, 14 days elapsed before the drug was completely absorbed and the sphincter oculi and ciliary muscles resumed their normal function. The patient was unable to work during this time.

Most pharmaceutical manufacturers colour-code their labels to minimize the risk of mistaken identification. Others, however, do not. It is therefore folly to assume that two containers have the same content in similar strength merely because their labels are of identical colour. Mishaps arising from such carelessness or from improper labelling have been recorded elsewhere. They include the following examples:

1. A syringe believed to contain atropine sulphate was used for intravenous administration in a patient with bradycardia. It contained 60 mg of succinylcholine, causing complete paralysis.

2. Very dilute solutions of silver nitrate are used in the eyes of newborns to prevent gonococcal infection. In one institution the strength of the solution used in six infants was not confirmed before use. It was approximately 20 times more potent than solutions normally used, causing permanent blindness in all infants.

3. Following the administration of an anaesthetic using ether in a copper vaporizer, the remaining ether was drained and poured into an empty thiopental bottle. The ether was subsequently drawn up into empty syringes by another person who thought it was thiopental and used it intravenously in three patients. They died.

## Conclusion

In the use of medication, it is therefore imperative that all labels and markings be examined prior to its administration. If the medication is not labelled or improperly labelled, it should be discarded and not used.

Doctor Gaum is engaged in the practice of oral surgery at 1355 Victoria Park Ave, Toronto 375.

## Excerpts from the CDA Code of Ethics

*Service to the Public*

1. The dentist's first duty is to serve the public.

2. He must at all times practise his profession with all the knowledge and ability of which he is capable.

3. He must never practise under conditions which may adversely affect the quality of his treatment.

4. He is obliged to improve himself by constantly renewing his theoretical and clinical education, adjusting to modern concepts of practice.

5. He should kindly but firmly insist upon doing only those things which his professional knowledge dictates to be in the best interest of his patients' welfare.

*Consultations*

1. When it is necessary in the interest of his patient or when the patient or his family request it, the dentist should arrange for consultation.

2. The referring dentist and the consultant must avoid discrediting one another even if their opinions differ.

3. The consultant will not undertake any treatment without the consent of the referring dentist.

4. In case of disagreement on the proposed treatment and if the patient accepts the consultant's plan, the referring dentist may withdraw from the case.

*Fee Splitting*

It is contrary to professional ethics:

1. To pay a commission to a colleague or to any other person for referral of a patient;

2. To split fees with other practitioners or with other persons.

# Three-rooted mandibular molars in the Keewatin Eskimo

M. E. J. Curzon, MS, BDS, LDS, RCS
Jennifer A. Curzon, BDS, LDS, RCS
Frobisher Bay, Northwest Territories

Fig 1 Mandibular first permanent molars with a third distolingual root.

*This report indicates that three-rooted mandibular first permanent molars are much commoner in Eskimos than in white Canadians. Because of increased intermarriage between the two groups, the incidence of this anomaly may become more widespread in northern regions. Since dental caries is becoming more prevalent in the Keewatin Eskimo, necessitating increased dental service, the incidence of three-rooted molars must be considered during the treatment of these people. Not only are extractions more complicated but root canal therapy is rendered more difficult.*

*Cette étude indique que les premières molaires inférieures permanentes à trois racines se rencontrent plus fréquemment chez les Esquimaux que chez les Canadiens de races blanches. A cause d'intermariages plus fréquents entre les deux groupes, le nombre de cas présentant cette anomalie peut augmenter dans les régions nordiques. Puisque la carie dentaire devient plus répandue chez les Esquimaux Keewatins, la possibilité de cas de molaires à trois racines doit être envisagée durant le traitement des Esquimaux. L'extraction et le traitement des canaux de ces dents peuvent être plus difficiles.*

Aberrations of root morphology are common in third permanent molars but rare in first permanent molars of the lower jaw.[1] Mongoloid races exhibit this dental anomaly in approximately 10 per cent of first molars in contrast to its very rare occurrence in Caucasians.[2]

An extra supernumerary root has been observed in such diversified Mongoloid peoples as Chinese, Javanese, Malays and Eskimos.[3, 4] The prevalence of the anomaly in any of these groups varies and has been reported as high as 20 per cent.[5]

Since dental caries is becoming more prevalent in Eskimos,[6] necessitating increased dental care, the incidence of three-rooted molars must be considered during the treatment of these people. Not only is extraction more complicated, but root canal therapy is rendered more difficult.

This report deals with the prevalence of three-rooted mandibular first permanent molars found in Caribou Eskimo residents of seven villages in the Keewatin District of the Northwest Territories.

## Report of cases

The teeth were extracted because of dental caries or gross periodontal disease. This treatment formed part of a program of dental services sponsored by the Department of National Health and Welfare.

The incidence of three-rooted molars, as recorded for each Eskimo village visited, and the combined totals for the Keewatin Eskimo are shown in Table 1. It was not possible to determine whether the occurrence was bilateral since both mandibular molars were extracted in only one patient. In this instance, a young girl, both molars were affected.

The anomaly occurred more frequently in male Eskimos. Fifteen of the 27 molars extracted and showing the extra root were from females—a male to female ratio of 4:5.

## Discussion

*Morphology*—The extra root in three-rooted lower molars is usually distolingual, small and fragile. Curved at the apex toward the distobuccal root, its cross-section is circular as opposed to the dumb-bell shape of the mesial root and normal distal root. The latter, in the presence of a supernumerary root, retains its normal morphology but is reduced in size (Fig 1).

*Prevalence*—The anomaly has been reported and described in all races. Prevalence data so far have been confined to Caucasians, Mongoloids and Eurasians. Table 2 shows very clearly the higher incidence in the Mongoloid race.

Pedersen[4] reported that the anomaly is invariably symmetrical on both sides of the mandible. Tratman,[3]

**Prevalence of three-rooted first permanent mandibular molars in Keewatin Eskimo villages** **Table 1**

| Village | First permanent molars | | |
|---|---|---|---|
| | Number extracted | Number affected | Incidence % |
| Baker Lake | 9 | 2 | 22 |
| Chesterfield Inlet | 7 | 1 | 14 |
| Coral Harbour | 13 | 3 | 23 |
| Eskimo Point | 27 | 13 | 48 |
| Rankin Inlet | 19 | 4 | 21 |
| Repulse Bay | 9 | 1 | 11 |
| Whale Cove | 14 | 3 | 21 |
| Totals | 98 | 27 | 27 |
| (less Eskimo Point) | 71 | 14 | 19 |

however, in describing a large number of cases, found the occurrence to be asymmetrical in 13 per cent of Chinese and 12 per cent of Malays.

Identification of an extra root on a mandibular first molar can only be determined by examination of an extracted tooth. Periapical radiographs will not show the presence of such a supernumerary root because it is masked by the larger distobuccal root.[4]

The occurrence of three-rooted manibular molars varied widely in the different Eskimo villages we served, with an extremely high figure of 48 per cent in one community. This settlement, Eskimo Point, had more than twice as many cases as any other village. This may suggest the operation of a genetic factor accentuated by inbreeding. The incidence of the anomaly in Eskimo Point differed so significantly ($P < .001$) from the overall incidence in the other six communities (19 per cent) that this village can be considered separately.

The prevalence of 19 per cent for Keewatin Eskimos approximates that of Tratman's Javanese and Pyle's Alaskan Eskimos (Table 2). The level of 12.5 per cent recorded by Pedersen[4] for the Greenland Eskimo may be low since it was obtained from skulls in which not all of the roots of the teeth could be examined.

The prevalence of three-rooted molars recorded in this report was significantly higher than that in Malays reported by Tratman[3] ($P < .05$) and Laband[7] ($P < .01$). The anomaly is therefore more prevalent in Mongoloid than Caucasian races, reaching a peak in Eskimos and Javanese (approximately 20 per cent).

Tratman[2] has shown that intermarriage between Mongoloids and Caucasians, which is becoming more frequent among Eskimo and white Canadians, leads to a higher incidence of the anomaly than in the Caucasian race. It is therefore to be expected that the occurrence of three-rooted mandibular molars will increase in the future.


## Summary

The authors describe the frequency of three-rooted first mandibular permanent molars in the Keewatin Eskimo living in Canada. An overall incidence of 19 per cent is reported, with a maximum as high as 48 per cent in one isolated village.

These findings are compared to incidence data in other races and nationalities. Attention is drawn to the significance of the three-rooted mandibular molar in cent in one isolated village.



The authors express appreciation to Doctor Gordon Butler, director of the Northern Region Medical Services, Department of National Health and Welfare, for permission to publish this data. The advice and criticism of Professor P. O. Pedersen, Royal Dental College, Copenhagen, and Doctor M. V. Stack, Medical Research Council, Dental Unit, Bristol, England, is gratefully acknowledged. We wish to thank Mr. K. G. Robbins, University of Bristol Dental School Photography Unit for the preparation of the illustrations.



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**Prevalence of three-rooted first mandibular molars in various races and nationalities** **Table 2**

| Race | Nationality | Number of molars examined | Number of molars affected | % | Author | Year |
|---|---|---|---|---|---|---|
| Caucasian | Dutch | 1,713 | 18 | 1.0 | Bolk[8] | 1915 |
| | Finnish | 209 | 2 | 0.9 | Hjelman[9] | 1928 |
| | German | 1,223 | 20 | 1.6 | Fabian[10] | 1928 |
| Eurasian | Malay | 149 | 8 | 5.3 | Tratman[3] | 1938 |
| Mongoloid | Chinese | 937 | 74 | 7.9 | Tratman[3] | 1938 |
| | Malay (Singapore) | 303 | 32 | 10.5 | Tratman[3] | 1938 |
| | Javanese | 64 | 11 | 17.2 | Tratman[3] | 1938 |
| | Malay (North Borneo) | 134 | 11 | 8.2 | Laband[7] | 1941 |
| | Eskimo (Alaska) | ? | ? | 20 | Pyle[5] | 1938 |
| | Eskimo (Greenland) | 64 | 8 | 12.5 | Pedersen[4] | 1949 |

# Le développement de la gingivite

**Else Theilade, DDS**
**Aarhus, Danemark**

*Une série d'expériences avec des volontaires a permis d'étudier le développement de la plaque dentaire et de la gingivite sur le plan clinique et par des techniques bactériologiques. La plaque dentaire consiste en un amas de micro-organismes enfouis dans une matrice organique qui colle fortement à la dent, le long du rebord gingival marginal et qui ne peut être enlevée que par un brossage minutieux. L'auteur montre comment la plaque dentaire cause la gingivite. L'organisme de l'hôte n'étant pas capable d'éliminer les micro-organismes parce qu'ils sont logés dans la plaque, en dehors des tissus, la gencive ne peut redevenir saine que lorsque la plaque a été éliminée. Les enzymes, les toxines et les antigènes accumulés dans la plaque produisent un état d'irritation qui entraîne ensuite la réaction inflammatoire.*

*Dental plaque causes and is always found where there is inflamed gingiva. In a series of experiments with human volunteers, healthy gingiva was obtained by meticulous oral hygiene. Dental plaque and gingivitis developed when oral hygiene was discontinued. Gingivitis was diagnosed after 10-21 days without oral hygiene. The gingiva became healthy again in a few days after oral hygiene was reinstituted. Dental plaque adheres firmly to the teeth along the gingival margin. It can be removed by daily thorough toothbrushing. The microbial flora of plaque is extremely complex. The clean teeth of persons with good oral hygiene harbour only a few scattered organisms, mainly gram-positive cocci and rods which multiply after toothbrushing ceases. They are supplemented after one or two days by gram-negative cocci and rods. Fusobacteria and filamentous bacteria appear after three to four days, and spirilla and spirochaetes are found after seven to 10 days. By that time the bacterial flora of the mature plaque is complete. Subclinical gingivitis begins after two to three days, long before the entire plaque flora is present. The bacteria do not invade but act from outside the tissues. Bacterial metabolic products, enzymes, toxins and antigens accumulated in the plaque cause chronic irritation which elicits the inflammatory reaction.*

La gencive normale, exempte d'inflammation, est caractérisée cliniquement par une couleur rose pâle, une surface grenue et une consistance ferme (Fig 1). Histologiquement, elle ne montre pas de cellules inflammatoires et l'épithélium du sillon gingivo-dentaire forme une couche mince, uniforme le long de la dent. On peut voir que la gencive est formée d'épithélium et de tissu conjonctif. Du côté de la cavité buccale, l'épithélium est épais et kératinisé, du côté de la dent, l'épithélium est très fin, délicat et ne montre pas de kératinisation. Le tissu conjonctif est formé de quelques rares cellules et de nombreuses fibres collagènes ce qui explique la consistance ferme de la gencive saine.

Les fibres supra-alvéolaires attachent la gencive libre au collet de la dent et empêchent ainsi la croissance de l'épithélium du sillon gingivo-dentaire vers l'apex et de cette façon une poche parodontale ne peut se former. En outre, le tissu conjonctif renferme des vaisseaux sanguins.

## La gingivite

Des études épidémiologiques réalisées dans de nombreux pays, en Europe, en Amérique, aux Indes, en Afrique, ont montré que la gencive saine est rare. Le plus souvent les patients examinés présentent une gingivite (Fig 2). Sur le plan clinique, la gingivite se présente avec les symptômes suivants: rougeur plus ou moins intense, absence de surface grenue (surface lisse) oedème variable en intensité, consistance molle et tendance au saignement. Sur les coupes histologiques, la gingivite se caractérise par une prolifération irrégulière de l'épithélium du sillon gingivo-dentaire et une infiltration du tissu conjonctif par de nombreuses cellules inflammatoires surtout des lymphocytes et des plasmocytes. Des leucocytes migrent à travers l'épithélium dans la lumière du sillon gingivo-dentaire ainsi qu'un exsudat inflammatoire. Si l'on colore une coupe histologique pour mettre les fibres collagènes en évidence, on peut voir que le collagène a disparu dans les zones enflammées, c'est ce qui explique pourquoi la gencive enflammée n'est plus de consistance ferme et que son attachement au collet de la dent est devenu lâche. Sur les coupes histologiques, on peut également mettre en évidence l'agent pathogène responsable: la plaque dentaire.

Fig 1 Aspect clinique d'une gencive saine.

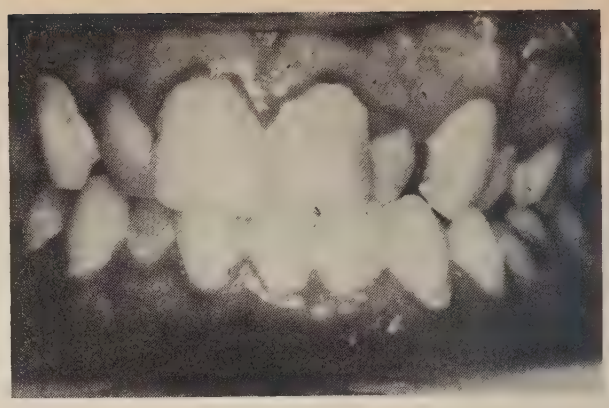


Fig 2 Aspect clinique d'une gingivite.

Les modifications tissulaires dues à l'inflammation débutent dès l'enfance, leur fréquence et leur gravité allant en augmentant avec l'âge. Parmi la population adulte, on note plus de 90 p.c. de cas de gingivites qui se transforment progressivement en parodontite marginale. Après 40 ans, on extrait plus de dents par suite de parodontolyses que par suite de caries.

Pour nous permettre d'apprécier l'importance des parodontopathies, nous avons besoin d'un index de référence. Nous utilisons l'index gingival de Löe et Silness[1] pour mesurer la gravité de la gingivite. A chaque unité gingivale (correspondant à une surface dentaire) est attribuée une valeur de zéro à trois. On peut ainsi calculer l'index gingival moyen d'un patient ou d'un groupe de patients. "Zéro" signifie absence d'inflammation, "Un" signifie inflammation légère, "deux" signifie inflammation modérée et "trois" inflammation sévère. L'efficacité de la pratique de l'hygiène buccale peut aussi être évaluée par la quantité de plaques dentaires selon l'index de plaque de Silness et Löe.[2] A chaque surface dentaire, on attribue un chiffre de zéro à trois et à nouveau, on peut calculer des moyennes. "Zéro" signifie absence de plaques. "Un" signifie une couche mince qui n'est visible que si l'on utilise une sonde. "Deux" signifie une accumulation modérée visible à l'oeil nu et "trois" signifie une accumulation abondante.

Les études épidémiologiques ont clairement démontré qu'il existe une corrélation élevée entre la présence de plaques et la gingivite et elles ont révélé que la cause profonde des parodontolyses réside en une hygiène dentaire déficiente.

Ces résultats sont confirmés par le fait que les individus qui ont assimilé une technique efficace d'hygiène dentaire et qui désirent garder leurs dents absolument propres, présentent une gencive saine sans inflammation. Dans ces cas, l'index des plaques et l'index gingival sont tous deux égal à zéro.

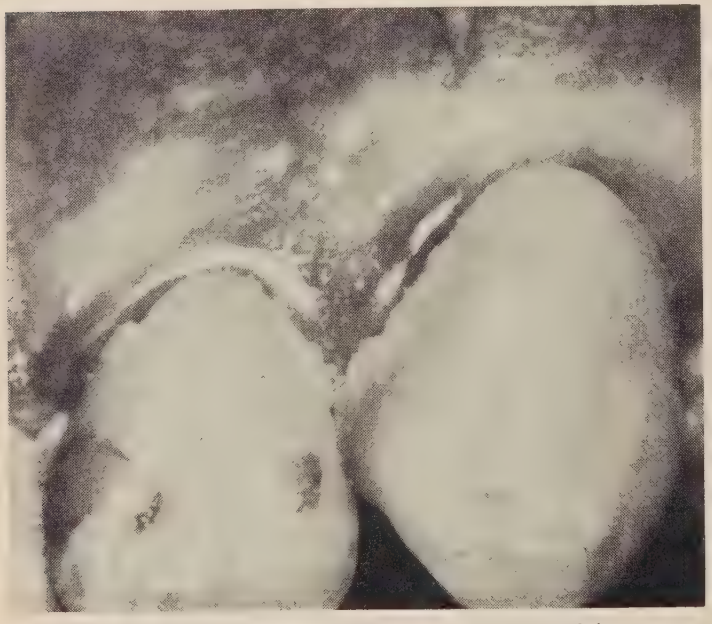
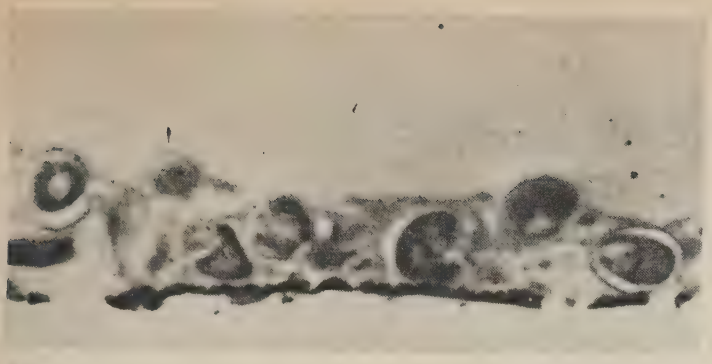


Fig 3 Des plaques se sont accumulées et une gingivite s'est développée en vingt et un jours en l'absence de mesures d'hygiène dentaire.

Fig 4 Même sujet que celui de la figure 3. Huit jours après la reprise des soins d'hygiène dentaire, la gencive est à nouveau saine.



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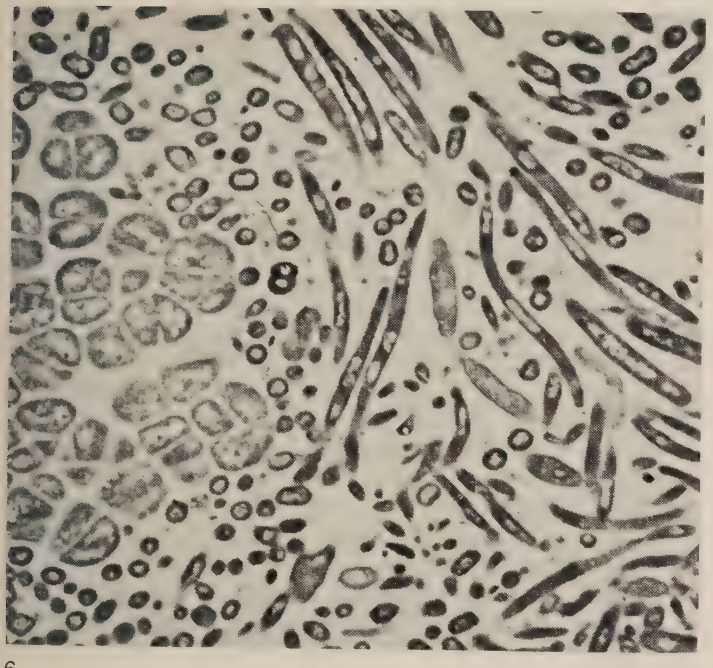

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Fig 5 Microphotographie d'une plaque dentaire, prise au microscope électronique par Jörgen Theilade. Elle montre une pellicule recouverte par une seule couche de micro-organismes. Cette plaque dentaire s'est formée en un seul jour. x 10,700.

Fig 6 Microphotographie d'une plaque dentaire prise au microscope électronique par Jörgen Theilade. Elle montre une plaque plus âgée possédant plusieurs couches de micro-organismes. x 4,000.

Fig 7 Microphotographie d'une plaque dentaire prise au microscope électronique par Jörgen Theilade. La plaque est préparée à l'aide d'une technique différente pour mettre en évidence la trame de la substance intermicrobienne. Les images arrondies correspondent à des bactéries coupées transversalement. x 10,300.

**La gingivite réalisée expérimentalement**

A l'école dentaire de Aarhus, Löe, Theilade et Jensen[3] ont étudié le développement des plaques et de la gingivite sur des volontaires. Avant le début de l'expérience, les sujets présentaient des dents propres et une gencive saine (Fig 1). Ensuite ils ont interrompu toute mesure d'hygiène et l'aspect clinique gingivo-dentaire fut étudié à l'aide des index de plaques et des index gingivaux. Chez tous les sujets, des plaques se sont accumulées le long du rebord gingival dès la cessation des soins d'hygiène. Après sept jours environ, les signes cliniques d'une gingivite commencèrent à se montrer et après 10 à 21 jours l'index gingival moyen de chaque bouche s'élevait à "un". Une gingivite légère s'est donc installée en 10 à 21 jours en l'absence de mesures d'hygiène. La figure 3 se rapporte à une personne qui a cessé de se brosser les dents depuis 21 jours. Des plaques se sont accumulées et une gingivite s'est développée. Il faut remarquer la rougeur et l'oedème du rebord marginal. Après ce délai, les sujets de l'expérience recommencèrent à se brosser les dents et en quelques jours elles étaient à nouveau propres (Fig 4). L'inflammation gingivale disparut immédiatement après l'élimination des plaques et huit jours après la reprise du brossage dentaire, la gencive était à nouveau normale.

Ces expériences ont prouvé de façon définitive que la gingivite est causée par la présence de plaques et peut être traitée en les éliminant pour garder les dents propres. Par la même occasion, nous avons pu étudier de façon plus approfondie divers aspects du développement des plaques et de la gingivite.

**La plaque dentaire**

La plaque dentaire est composée d'un ensemble de micro-organismes différents qui prolifèrent sur la surface de la dent le long du rebord marginal. Les micro-organismes sont enfouis dans une substance organique qui est responsable de l'adhérence de la plaque à la dent. La plaque dentaire n'est pas éliminée par un rinçage buccal ou en absorbant des aliments comme des pommes, mais elle peut être éliminée par brossage. Si la plaque se calcifie, elle s'appelle alors du tartre et il n'est plus possible de l'enlever avec une brosse à dents. Il existe toujours une couche non calcifiée (donc une plaque) à la surface du tartre, par conséquent ce dernier a le même effet nocif sur la gencive que la plaque.

La surface d'une dent qui vient d'être nettoyée se recouvre rapidement d'une pellicule de glycoprotéines d'origine salivaire. Le long du rebord marginal

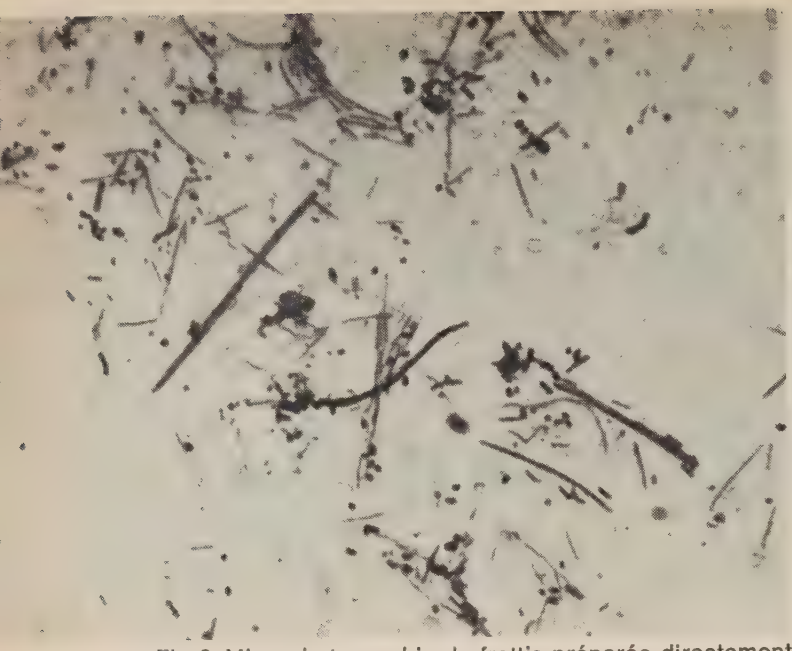

Fig 8 Microphotographie de frottis préparée directement à partir de plaque dentaire. Elle montre la flore complexe de la plaque après la coloration de Gram. x 1,000.

de la gencive, les micro-organismes commencent à se multiplier dans cette pellicule et après quelques jours, la surface est recouverte par plusieurs couches de micro-organismes (Fig 5, 6). La figure 7 est une microphotographie préparée à l'aide d'une technique différente pour mettre en évidence la trame de la substance intermicrobienne. Les images arrondies correspondent à des bactéries coupées transversalement. Les protéines salivaires forment une partie de la substance intermicrobienne, laquelle a pour rôle principal de maintenir ensemble les dépôts de même que les polysaccharides extracellulaires produits par certaines bactéries. Les micro-organismes peuvent seulement synthétiser ces polysaccharides extracellulaires (dextran et levan) à partir du sucrose. C'est pourquoi l'ingestion répétée de sucrose produit une plaque beaucoup plus épaisse qu'une alimentation sans sucrose. Cependant la plaque dentaire se forme même en l'absence de nourriture.

Fig 9 Microphotographie de frottis de la microflore très peu nombreuse qui se trouve sur les dents propres, lorsque la gencive est saine. x 1,000.

## La flore de la plaque

La flore de la plaque dentaire est extrêmement complexe. L'examen microscopique de frottis préparés directement à partir de plaques dentaires (Fig 8) montre que 50 p.c. des bactéries prennent la coloration de Gram (elles sont colorées en bleu) et à peu près 50 p.c. sont Gram négatives (elles sont colorées en rouge). On peut voir des cocci et des bacilles Gram positifs et négatifs, de longs bacilles minces Gram négatifs à extrémités effilées (fusobactéries), des bactéries filamenteuses Gram positifs et négatifs, des bacilles curvilignes Gram négatifs (spirilles) et des bactéries minces en forme de spirale (spirochètes).

Un examen plus détaillé de ces souches doit être réalisé sur des cultures pures. Si nous connaissons à l'heure actuelle les groupes principaux, nous sommes encore loin de posséder une systématique et une classification de tous les germes de la plaque dentaire. De nombreuses difficultés se présentent lorsque l'on essaie de mettre en culture l'ensemble de la flore ce qui rend nos connaissances très incomplètes.

Lors de nos recherches sur la gingivite réalisée expérimentalement chez l'homme, nous avons également étudié le développement de la flore de la plaque en examinant les frottis colorés et réalisés directement de la plaque dentaire. Nous avons également utilisé une technique spéciale d'empreintes développée par Gins. Un morceau de film plastique en styroflex est comprimé sur la surface de la dent et de la gencive de telle façon que les cellules épithéliales de la gencive et la plaque adhèrent au film en styroflex. En présence d'une gingivite, les leucocytes sont également exprimés du sillon gingivo-dentaire et adhèrent au styroflex. Ces empreintes sont colorées et examinées au microscope, elles possèdent le grand avantage de révéler les différentes structures dans les mêmes positions relatives que in vivo.[4]

La microflore qui se trouve sur les dents propres, lorsque la gencive est saine, est très peu nombreuse. Sur les frottis (Fig 9) et les empreintes au styroflex, nous trouvons des cellules desquamées, mais seulement quelques bactéries disséminées, presque exclusivement des cocci et des bacilles Gram positifs. Pendant la période où les soins d'hygiène sont interrompus, la flore de la plaque augmente progressivement en sept à 10 jours. Déjà après un ou deux jours, la plaque contient des amas de cocci et de bacilles Gram positifs, et aussi de nombreux cocci et bacilles Gram négatifs. L'épithélium de la gencive marginale renferme également de nombreux cocci et bacilles comme le montrent les empreintes au styroflex; tandis que la flore de la plaque manifeste une complexité croissante, ces cocci sont toujours trouvés sur les cellules épithéliales. Après trois à quatre jours, des fusobactéries et des bactéries filamenteuses apparaissent dans la plaque en plus des cocci et des petits bacilles. A ce moment on trouve aussi des leucocytes dans les empreintes au styroflex, ce qui signifie qu'une inflammation subclinique s'est déjà développée en pré-

sence de cette flore. Les spirilles et les spirochètes ne sont pas visibles avant le dixième jour. A ce moment, on les trouve sur les empreintes au styroflex, en petits amas microscopiques tout près de la gencive marginale. Ce sont les derniers types morphologiques à apparaître.

Sur les frottis, les différents organismes sont mélangés en préparations plus homogènes et l'on peut déterminer leur distribution relative. Les frottis réalisés à partir de plaques dentaires en cours de développement (de zéro à 22 jours), ont montré que la plaque possède sa flore définitive après 14 jours environ: à partir de ce moment, la structure de la plaque est la même que celle que l'on observe chez les patients présentant une gingivite chronique. A ce moment, la plaque renferme environ 50 p.c. de bactéries qui sont des cocci et des bacilles Gram positifs, 30 p.c. sont des cocci et des bacilles Gram négatifs. Les fusobactéries et les formes filamenteuses constituent chacune 8 p.c., les spirilles et les spirochètes constituent chacun 1 à 2 p.c.

## La correlation entre la flore de la plaque et la gingivite

En observant la corrélation entre la flore au niveau de la gencive marginale d'une surface dentaire d'une part, l'aspect clinique de la gencive à ce même endroit d'autre part, nous avons pu montrer que:

— avant le début de l'expérience, la surface dentaire est propre (index plaque égale zéro) et la gencive est normale (index gingival égale zéro), quelques cocci et bacilles Gram positifs très disséminés sont mis en évidence;

— pendant la période où les soins d'hygiène sont suspendus, les plaques dentaires s'accumulent (l'index des plaques augmente jusque un, puis plus tard jusque deux) et les différentes composantes de la plaque apparaissent peu à peu en 10 jours: en plus des bacilles et cocci Gram positifs, des bacilles et cocci Gram négatifs, des fusobactéries, des formes filamenteuses, des spirilles et des spirochètes. D'habitude, une gingivite légère (index gingival égale un) peut être diagnostiquée au moment où la flore composite de la plaque s'est constituée. Cependant, il nous faut rappeler que des signes d'inflammation subclinique débutent beaucoup plus tôt car déjà deux jours après la cessation des soins d'hygiène, des leucocytes et un exsudat sortent de la poche gingivale. Lorsque l'index gingival moyen a atteint la valeur "un" pour toute la bouche, les dents sont à nouveau brossées. Déjà le lendemain, les plaques ont disparu presque partout et la flore est réduite aux quelques germes que nous avions mis en évidence au début de l'expérience. La gencive redevient normale un jour après que la plaque dentaire a été éliminée. Après cinq à sept jours, l'index gingival moyen de toute la bouche est à nouveau égal à zéro, de sorte que la gencive est à nouveau aussi saine qu'au début de l'expérience.

## Pathogenicité des micro-organismes de la plaque

La gingivite est la réaction des tissus gingivaux à l'irritation des micro-organismes de la plaque. De même que n'importe quel autre phénomène inflammatoire, c'est une réaction vasculaire avec hyperémie, exsudation de liquide et migration de leucocytes. Sa sévérité dépend du rapport entre les micro-organismes (nombre et virulence) et l'hôte (résistance générale et locale).

Lors de maladies infectieuses ordinaires, les micro-organismes envahissent les tissus de l'hôte et y prolifèrent. Dans la gingivite, les micro-organismes restent en dehors de l'hôte, dans la plaque. En pratique, on n'en trouve pas dans les tissus gingivaux, ce qui signifie que les organismes de la plaque dentaire ne sont pas capables d'envahir, de survivre et de se multiplier dans les tissus de l'hôte parce qu'ils possèdent une virulence faible. Si les mécanismes de défense de la gencive peuvent donc empêcher les micro-organismes de la plaque d'envahir les tissus, ils ne peuvent les éliminer parce qu'ils se trouvent dans la plaque, c'est-à-dire en dehors du champ d'action des phagocytes et des facteurs humoraux antibactériens.

Etant donné que les micro-organismes se trouvent en dehors de la gencive, nous devons admettre que les produits microbiens qui s'accumulent dans la plaque sont capables de produire une réaction inflammatoire en pénétrant dans le sillon gingivo-dentaire. Ce mécanisme est loin d'être complètement élucidé: jusqu'à présent, il s'agit plutôt d'une hypothèse que semblent confirmer les recherches.

On sait que la microflore de la plaque produit de nombreuses substances biologiquement actives qui peuvent contribuer au déclenchement et à l'entretien de la gingivite. Parmi ces substances, on peut trouver de simples produits du métabolisme bactérien tels que des acides organiques, de l'ammoniaque, et de l'hydrogène sulfuré. L'ammoniaque et l'hydrogène sulfuré (acide sulfhydrique) sont très irritants s'ils sont appliqués sur les muqueuses à des concentrations comparables à celles qui s'accumulent dans les plaques dentaires, ainsi que Rizzo[5,6] l'a démontré.

Les enzymes bactériennes constituent un autre groupe important de substances. Il y en a beaucoup dans la plaque dentaire. Schultz-Haudt[7] et de nombreux autres auteurs ont montré que la plaque dentaire contient des micro-organismes producteurs d'enzymes protéolytiques et d'hyaluronidase, qui peuvent dégrader certains constituants de la substance intercellulaire des tissus épithéliaux et conjonctifs. De telles modifications peuvent être responsables d'une réaction inflammatoire. En outre cette activité enzymatique peut permettre à d'autres substances d'origine bactérienne de pénétrer à l'intérieur des tissus, alors que par elles-mêmes, ces substances ne sont pas capables de franchir la barrière épithéliale.

On pense que les endotoxines bactériennes joueraient également un rôle dans l'étiologie de la gingivite.[8] Les endotoxines forment un groupe de substances toxiques libérées à partie de bactéries mortes et autolysées, elles sont des constituantes des cellules bactériennes. Une endotoxine lipopolysaccharidique libérée de la membrane cellulaire des bactéries Gram négatives possède une activité biologique très grande lorsqu'on l'injecte à des animaux d'expérience. Les endotoxines produisent entre autres, de la fièvre et des réactions vasculaires pouvant amener un choc. Les réactions locales consistent en phénomènes inflammatoires. Même l'injection de quantités très minimes (un microgramme) sous la peau ou sous

la muqueuse produit une réaction inflammatoire cliniquement visible. Dans la plaque dentaire se trouvent un grand nombre de bactéries Gram négatives (plus de 50 p.c.) cependant nous ne savons pas encore jusqu'à quel point ces micro-organismes meurent, sont autolysés et libèrent des endotoxines.

Le problème de la pénétration de grosses molécules lipopolysaccharidiques à travers les tissus gingivaux reste obscur et Rizzo[9] n'a démontré cette pénétration à travers l'épithélium du sillon gingivo-dentaire que si ce dernier a été préalablement ulcéré.

Le dernier groupe de substances qui peuvent jouer un rôle dans le développement de la gingivite, ce sont les antigènes bactériens. Bien que dans ce domaine aussi, nos connaissances soient jusqu'à présent fort limitées, il semble que des réactions d'immunisation se produisent dans la gencive avec accumulation de lymphocytes et de plasmocytes et que des anticorps soient formés à partir des antigènes de la plaque dentaire. De telles réactions peuvent aussi contribuer au développement de l'inflammation et à la destruction des tissus.[10]

Actuellement, il ne nous est pas possible d'évaluer l'importance relative des différentes substances d'origine bactérienne qui irritent la gencive, nous ne sommes pas certains de connaître les substances qui jouent un rôle dans ce processus et encore moins celles qui seraient les plus actives. Des substances nuisibles en puissance sont produites par les nombreux micro-organismes variés qui se trouvent dans la plaque, mais aucun élément ne nous permet d'affirmer qu'un organisme déterminé jouerait un rôle principal.

En résumé, la gingivite est causée par la microflore de la plaque dentaire. L'organisme de l'hôte réagit à cette irritation par des phénomènes inflammatoires mais il n'est pas à même d'éliminer les micro-organismes parce qu'ils se trouvent en dehors des tissus. C'est pourquoi la gingivite persiste aussi longtemps que la plaque est laissée sur la dent. Lorsque la plaque dentaire est éliminée, la gencive devient saine.


**Résumé**

Des études épidémiologiques ont montré que les parodontolyses sont répandues sur toute la surface du globe. Presque 100 p.c. des adultes présentent une gingivite et les parodontolyses sont responsables de la plupart des extractions des sujets de plus de 40 ans. La plaque dentaire est toujours présente en même temps que la gingivite et on a montré qu'elle était la cause du phénomène inflammatoire.

Une série d'expériences furent réalisées avec des volontaires. Une hygiène dentaire rigoureuse permit d'obtenir une gencive saine, ensuite les mesures d'hygiène furent suspendues et on étudia le développement de la plaque dentaire et de la gingivite à la fois sur le plan clinique et par des techniques bactériologiques. La gingivite fut diagnostiquée après 10 à 21 jours après l'arrêt des mesures d'hygiène. La gencive redevint saine quelques jours après la reprise des mesures d'hygiène.

La plaque dentaire consiste en un amas épais de micro-organismes enfouis dans une matrice organique qui colle fortement à la dent, le long du rebord gingival marginal. La plaque peut être enlevée par un brossage quotidien minutieux. La flore microbienne de la plaque est extrêmement complexe. La surface dentaire de personnes dont l'hygiène dentaire est bonne, n'héberge que quelques micro-organismes disséminés, presque tous des cocci Gram positifs et des bacilles. Si le sujet ne se brosse plus, la flore de la plaque se développe progressivement. Ont peut voir une augmentation des cocci et bacilles Gram positifs auxquels s'adjoignent des cocci et des bacilles Gram négatifs après un ou deux jours. Des fusobactéries et des bactéries filamenteuses apparaissent après trois ou quatre jours. Des spirilles et des spirochètes peuvent être trouvés après sept à 10 jours. A ce moment, tous les types morphologiques visibles dans une plaque dentaire parfaitement constituée sont présents. Une gingivite "subclinique" débute déjà après deux à trois jours donc longtemps avant que la plaque dentaire ait atteint un complet développement.

Les mécanismes par lesquels la plaque dentaire provoque la gingivite ne sont pas connus en détail. Les bactéries n'envahissent pas la gencive mais agissent sur les tissus par l'extérieur. Les produits du métabolisme bactérien, les enzymes, les toxines et les antigènes accumulés dans la plaque produisent un état d'irritation persistant qui entraîne la réaction inflammatoire.



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## Book Reviews

### Periodontics for the Dental Practitioner

*J. D. Manson. Ed 2. London, Henry Kimpton, 1970. 254 p. Illus. 80s.*

The first edition of this book earned rave notices. It was a clear, clean, tidy explanation of "how to do it" rather than "why." But the second edition has become untidy with the addition of three appendices dealing with the normal periodontium, aetiology and histopathology of periodontal disease. Superficial in nature, they have no link with the earlier chapters and can only have been inserted so that undergraduate students may pass their examinations–a messy way to ruin an otherwise excellent book. Nevertheless, a good 80 per cent of the book is first class, easy to read and clear. For the practitioner who wishes to extend his range of treatment, this is the book to buy. But for undergraduate students I would have considerable reservation.

The author has been modest and careful with the addition of new material so that the book is still of a pleasant size to handle and read.

A new chapter on the intimate relationships between restorative and prosthetic procedures and the periodontium is an excellent idea. But the author seems unwilling to support certain new principles which have been established beyond reasonable doubt in recent decades. Included among these is the proper position of the gingival margin of restorations. Regrettably, Manson's new chapter appears to be a sop to the conservative elements in restorative and prosthetic dentistry.

The chapter on acute gingivitis has not been adequately revised for he condemns penicillin as a treatment for acute Vincent's infection, and devotes very little space to the use of metronidazole. The chapter also appears unbalanced in view of the limited consideration accorded acute pericoronitis which must be the commonest acute gingival infection seen in general practice. A similar amount of space on the opposite page has been allotted to a woolly and unconvincing account of acute streptococcal gingivitis, surely the rarest of all acute gingival infections. Manson thus seems unable to distinguish the relative importance to general practice of various diseases or procedures.

But once again the author, photographer, and artist from the Royal Dental Hospital of London are to be congratulated on their work as much as the publisher.

*J. R. Trott*

### Principles of Dental Public Health

*J. M. Dunning. Ed 2. Cambridge, Mass. Harvard University Press, 1970. 598 p. Illus. $15.00*

Seven years have elapsed since Dunning first published this excellent book. Like its predecessor, this new edition is divided into four parts: background; the tools of dental public health; dental health programs and the future.

The background material on public health practice provides a historical perspective.

Biostatistics, particularly the application of statistical methods to dental research and survey data, is presented in a manner that is easy to comprehend. An important addition is a résumé of Russell's findings on the relation between nutrition and dental caries. The section on epidemiology of periodontal disease has been expanded to include new material on oral malformations and malocclusion. Also added is a brief new section on oral cancer.

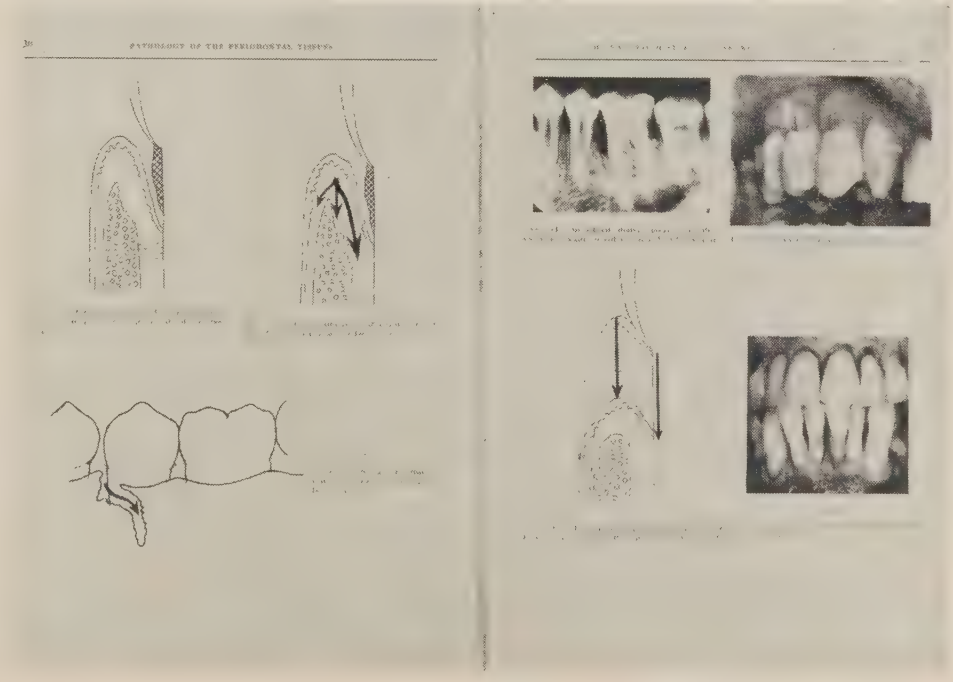
The chapter on preventive dentistry describes studies using Brudevold's acidulated phosphate-fluoride solution but does not mention recent Scandinavian studies reporting encouraging results from supervised use of sodium fluoride mouthwashes. This is disappointing.

Since the 1966 US Social Security Act, government financial support for personal health services has increased enormously in the United States. Citing these developments, Dunning draws attention to the consequent shift from an earlier philosophy that dental care is first an individual and then a community responsibility to the current acceptance that health care is a "right."

Turning to incremental dental care, the author contends it is unjustifiable to devote the bulk of the resources of a given program to the restoration of deciduous teeth.

Under "Organization of Dental Care," Dunning has missed the opportunity to offer advice on the adequacy of training for dental auxiliary personnel. Some thoughts on the economic realities that influence the private practitioner's employment of auxiliaries would have been enlightening.

Periodontics for the Dental Practitioner



The descriptions of state dental programs and United States federal programs have been substantially revised and enlarged. The résumé of dental programs under US Medicare and Medicaid reflects a change in political philosophy and a shift, since 1965, from an almost exclusive emphasis on research and planning for prevention to planning and financial support for personal health care.

Readers who seek early solutions to unsolved health problems will find consolation in the author's words . . . "human life is always more of an equilibrium than a finished fight." Doctor Dunning, a philosopher and a scholar who has read and evaluated hundreds of studies and opinions, has given his colleagues and the profession a work that is historical yet always contemporary. This text ought to be the cornerstone of the public health dentist's library.

*H. J. Hann*

### Oral Anatomy

*Harry Sicher and E. L. DuBrul. Ed 5. St. Louis, The C. V. Mosby Company, 1970. 502 p. Illus. $19.25*

Sicher's *Oral Anatomy* needs no introduction to dental teachers, students or practitioners. It fills the gap between the first years of instruction in anatomy and the later practice of dentistry in its widest sense.

The first part of the book is given to descriptive and functional anatomy of the head and neck. A chapter on osteology provides a detailed account of the bones of the face and skull together with anthropological and physiological particulars of bone growth. Other chapters dealing with muscles, nerves, vascular and lymphatic supply are followed by a further chapter about the oral cavity, salivary glands, teeth and sinuses.

The second section deals with applied anatomy related to local anaesthesia, arterial haemorrhage, focal infection, and the temporomandibular and other joints.

The chapter on the temporomandibular joint in the third part of the book has been completely revised. Biomechanics and functional neuro-anatomy have been given prominence, along with a morphological description of the joint; thus the "how" has been added to the "why." Its simple, schematic diagrams will undoubtedly make this chapter a popular reference source.

*Oral Anatomy* is a reference text not only for dental students and dentists but also for surgeons, otorhinolaryngologists and other health professionals. The revision of Chapter 14 has improved a book which already enjoyed a high reputation in the profession.

*Arto Demirjian*

# Analyse de livres

### Dentisterie opératoire. Tome I Dentisterie thérapeutique

*A. Marmasse. Ed 4. Paris, J.-B. Baillière et Fils, 1969. 655 p. Illustré. 60F.*

L'ouvrage de Marmasse qui vient de paraître (4ème édition de *Dentisterie Thérapeutique,* Tome I) est certainement très bien présenté et marque un progrès remarquable par rapport à l'édition précédente. C'est un ouvrage classique d'expression française d'endodontie moderne et scientifique qu'on peut sans hésitation recommander aux étudiants et aux praticiens d'expression française qui cherchent à rafraîchir leurs connaissances d'endodontie.

Cet ouvrage expose des connaissances fondamentales sur des techniques éprouvées par le temps et basées sur des recherches sérieuses; il renferme aussi une analyse bibliographique de travaux récents publiés en Europe et en Amérique.

En lisant le texte de cet ouvrage, on se rend compte très vite que l'auteur, ayant le respect des traditions conservatrices, adhère farouchement à certaines méthodes de traitement qui nous paraissent périmées et désuètes (cobalt arsenical pour la pulpectomie par escharification arsenicale à base de l'anhydride arsénieux). Nous regrettons sincèrement qu'un ouvrage de cette classe contienne un long chapitre consacré à la défense d'une philosophie de traitement qui aujourd'hui appartient au passé. Il n'y a plus de doute dans l'esprit de tous ceux qui pratiquent l'endodontie *lege artis* que la dévitalisation des dents sous anesthésie locale assure l'insensibilisation complète et donne la quiétude opératoire nécessaire. Cette méthode est nettement supérieure aussi bien pour les dents antérieures que pour les postérieures.

En lisant cet ouvrage, nous éprouvons un grand plaisir, car l'auteur se donne beaucoup de peine pour être à jour, pour inclure tout ce qui est plus récent en endodontie aussi bien au point de vue théorique que clinique. L'auteur se base sur le travail de maîtres français et américains qualifiés en endodontie.

La structure d'ensemble de l'ouvrage est homogène; il est richement illustré et très scientifique. On devrait féliciter l'auteur pour avoir élaboré d'une façon très explicite le chapitre du "Champ opératoire" en endodontie et l'emploi de la digue. Nombreux sont ceux qui encore aujourd'hui osent douter de la valeur du champ opératoire stérile au cours de la thérapie canalaire. La cause de l'asepsie doit être absolument gagnée si l'on veut obtenir de bons résultats en endodontie.

Le livre de Marmasse instruira profondément les étudiants en leur donnant une solide formation clinique, la possibilité de faire un bon diagnostic et ensuite faire le choix du traitement.

*Henryk Silbert*

### Oral anatomy

*Harry Sicher et E. L. DuBrul. Ed 5. St. Louis, The C. V. Mosby Company, 1970. 502 p. Illustré. $19.25*

Un livre du calibre de l'*Oral Anatomy* de Sicher n'a certainement pas besoin de présentation pour l'enseignant, l'étudiant et le praticien de la profession dentaire. C'est un traité d'anatomie appliquée qui remplit le vide entre les premières années d'instructions anatomiques et la pratique de la stomatologie dans le sens le plus large du mot.

La première partie du livre décrit l'anatomie descriptive et fonctionnelle de la tête et du cou. Le premier chapitre d'ostéologie donne un compte rendu détaillé des os du crâne et de la face avec des précisions anthropologiques et physiologiques de la croissance osseuse. Les chapitres décrivant les muscles, les vaisseaux, les nerfs et les lymphatiques de la tête et du cou sont suivis par un chapitre qui traite des viscères de cette région. C'est surtout le contenu de ce chapitre, cavité buccale, glandes salivaires, dents, sinus, etc, qui peut intéresser de près tous les membres de la profession dentaire.

La deuxième partie traite de l'anatomie appliquée telle que l'anatomie de l'anesthésie locale, les hemorragies artérielles et leur ligature, les propagations des infections, l'articulation temporo-mandibulaire et autres, qui sont d'un intérêt particulier aux différents spécialistes de la profession.

Dans cette dernière édition, c'est surtout la section de l'articulation temporo-mandibulaire qui a été complètement révisée et réécrite avec E. Lloyd DuBrul. Dans ce chapitre, la biomécanique de l'articulation et sa neuro-anatomie fonctionnelle prennent une grande importance, parallèlement à sa description morphologique. L'étude du "comment" a été ajoutée à celle du "quoi". Illustré avec des schémas très simples et bien compréhensibles, je pense que ce sera l'un des chapitres les plus consultés par les étudiants et les praticiens de la profession. Il n'y a pas d'autres changements remarquables dans le reste du texte et les illustrations depuis la dernière édition.

C'est un manuel qui peut servir à la fois comme livre de référence non seulement à l'étudiant sous-gradué et gradué en stomatologie, mais aussi à ceux de chirurgie, d'oto-rhino-laryngologie et aux praticiens de ces professions. La révision du chapitre 14 a certainement revalorisé ce livre qui était déjà si hautement estimé par la profession dentaire.

*A. Demirjian*

# A predictable situation

The latest proposals for reorganizing health disciplines in Ontario (reported in this issue) have had a mixed reception; and well they should!

The creation of an independent Health Disciplines Regulation Board tops 53 recommendations outlined in a cabinet-approved statement issued by Health Minister Thomas Wells as a basis for discussion. The proposed board would have wide-ranging powers, including that of regulating all health disciplines. But Mr. Wells left open the critical question of how much power the board will have over the five existing regulatory agencies governing physicians, dentists, nurses, pharmacists and optometrists.

A government spokesman said it would be a "matter of discussions" whether the board would be able to set a regulation on its own, or veto one set by a college. But since the board is to "co-ordinate" the colleges, making them "responsive to the entire regulatory structure," this does not seem to leave much room for "discussions."

Rather pointedly, too, Mr. Wells rules out any direct or indirect connection between voluntary associations and regulatory bodies. In future these must be legally and functionally independent of each other.

The intent is perfectly clear. It spells an end to the system whereby the Royal College of Dental Surgeons of Ontario makes annual per capita grants to the Ontario and Canadian Dental Associations. It means that Ontario dentists would need alternative means to gain the benefits of membership in provincial and national professional associations.

Mr. Wells says he expects to draft new legislation by mid-April. That does not leave much time to set our house in order.

Last year the Canadian Dental Association invited all corporate members to approve a new type of individual voluntary conjoint membership in national, provincial and local dental associations. This proposal could aid Ontario and would not supplant traditional arrangements which are satisfactory in other provinces. Yet, after nine long months of protracted debate only the Ontario Dental Association has given its approval. Further delay is unlikely to resolve the problem. There is still time for bold and imaginative action. And that time is now.

Otherwise, the march of events may well overtake Ontario's dentists and we shall all be wringing our hands over a perfectly predictable situation which it is too late to remedy.

# To serve humanity

The ethical basis of dentistry is rooted in age-old morals and standards of behaviour. Dentists are subject to self-imposed rules of conduct which have grown in amount and complexity as the profession has grown. These precepts reflect the privileges which society accords and the duties and restrictions it exacts from the profession. The duties correspond to the rights and needs of our fellow citizens; the restrictions are a necessary restraint on the unbridled indulgence of natural impulses.

Expressed in another way, "Our prime objective is to serve humanity; reward or financial gain is a subordinate consideration." On these timeless words hangs our strongest claim to public approbation and support. The inherent principle is immutable; only the rules by which dentists govern themselves are subject to amendment in accordance with society's prevailing needs and attitudes.

The Canadian Dental Association's Code of Ethics, newly revised last year, shows very clearly that the relation of a dentist and his patient is not that of a seller and buyer. It is a trust, confided to a dentist by his patient, who entrusts himself to the knowledge, good judgement, sincerity and honesty of the dentist. This is what makes dental practice a professional service worthy of a fee instead of wages for work or a price for something made.

This distinction gains further significance as patients in growing numbers carry insurance to cover the cost of dental treatment while programs are developed for others who cannot pay for it. A practitioner who raises his fee upon learning that his patient is covered by one of these plans respects neither himself nor his profession. He simply demonstrates that to him financial compensation is the prime object and reward.

If sufficient dentists were to abandon the ideals and traditions of the profession and adopt the practices of the marketplace, dentistry would be casting aside also the perquisites that have been accorded to it. The consequences could be incalculable as government becomes more and more concerned with the provision of dental service to the citizen. That alone is sufficient ground for a reaffirmation of our ethical principles.

Fortunately the example cited involves only a small minority of dentists, but it places the entire profession in an unsavoury light — which is particularly unfair to the many practitioners who devote themselves unstintingly to the service of their patients. Such selfless service is a part of the professional traditions, ideals and goals of dentistry. It should be a part of the philosophy of every dentist.

# Au service de l'humanité

L'éthique de l'art dentaire trouve son fondement dans une morale et des normes de conduite séculaires. Les dentistes sont soumis à des règles de conduite autonomes, devenues plus nombreuses et plus complexes avec le développement de la profession. Ces préceptes reflètent les privilèges que la société accorde et les devoirs et restrictions qu'elle impose à la profession. Les devoirs correspondent aux droits et aux besoins de nos concitoyens; les restrictions apportent un frein nécessaire au libre cours des impulsions naturelles.

En d'autres termes: "Notre objectif premier est de servir l'humanité; la compensation ou le gain financier est une considération secondaire". C'est sur cette maxime ancestrale que s'appuie le plus fermement notre prétention à l'approbation et à l'appui du public. Le principe inhérent en est immuable; seules les règles d'après lesquelles les dentistes se gouvernent sont susceptibles de changer selon les attitudes et besoins prédominants de la société.

Le Code d'éthique de l'Association Dentaire Canadienne, révisé l'année dernière, indique très clairement que la relation d'un dentiste à son patient n'est pas celle d'un vendeur à un acheteur. Il s'agit de confiance que le patient place en son dentiste lorsqu'il s'en remet au savoir, au jugement, à la sincérité et à l'honnêteté du dentiste. C'est ce qui fait de l'exercice de l'art dentaire un service professionnel digne d'honoraires et non d'un salaire comme pour un travail ni d'un prix comme pour un produit.

Cette distinction devient d'autant plus importante qu'un nombre grandissant de patients détient des assurances couvrant le coût des traitements dentaires et que l'on prépare des régimes pour d'autres qui ne peuvent pas les payer. Un praticien qui relève ses honoraires en apprenant que son patient est couvert par un de ces régimes ne respecte ni lui-même ni sa profession. Il démontre simplement que la rémunération financière constitue pour lui l'objectif et la compensation premières.

S'il y avait assez de dentistes qui abandonnaient les idéaux et les traditions de la profession pour adopter les pratiques du marché, l'art dentaire rejetterait également les avantages qui lui ont été accordés. Les conséquences pourraient en être incalculables au moment même où les gouvernements se préoccupent de plus en plus de la dispensation des services dentaires aux citoyens. C'est déjà là une

*(Suite à la page 112)*

# Enfin

Depuis plus de 20 ans que les dentistes de Montréal réclament la fluoration de l'eau potable, et cela sans succès, la réussite de cet important projet semble enfin possible. Deux facteurs politiques se dessinent à l'horizon qui mèneront, dans un temps relativement court, à la conclusion des démêlés qui ont opposé la profession au Maire Jean Drapeau.

La Communauté urbaine de Montréal, sous la direction de M. Lucien Saulnier, aimerait centraliser la distribution des eaux à travers toute l'île. Les municipalités qui bénéficient déjà de la fluoration ne sont cependant pas prêtes à remettre cette entreprise dans les mains de M. Drapeau, tant que celui-ci n'aura pas changé son attitude. D'autres municipalités, telles que Verdun, Westmount et Mont-Royal qui sont desservies par Montréal, profitent de l'occasion pour influencer une décision en faveur de la fluoration.

Les arguments que présente le maire ne tiennent pas debout. Loin d'être un "médicament" ajouté à l'eau qui serait imposé à la population, l'addition de fluor représente la correction d'une carence de fluor dans l'eau potable de Montréal, tout comme le sel de table est iodé au Canada depuis 1949 parce qu'il a été prouvé que le régime des Canadiens manque d'iode et que l'addition d'iode prévient le goitre. Ni le goitre, ni la carie ne sont des maladies "contagieuses", mais le fait d'ajouter de l'iode ou du fluor préviennent ces affections.

En janvier 1971, le ministre des Affaires sociales, M. Claude Castonguay, a déclaré qu'il ne pouvait pas voir comment on pouvait assurer la consommation de fluorure par chaque individu, et ceci d'une façon économique, sans l'ajouter à la source d'eau potable. Maintenant que le gouvernement provincial s'aventure dans le champs des soins dentaires pour enfants, il se doit d'étudier la manière d'instaurer la fluoration au Québec.

Le gouvernement absorbe déjà les dépenses occasionnées par l'installation de l'équipement requis. Le ministère de M. Castonguay étudie aussi d'autres voies telles qu'une loi qui forcerait les municipalités à fluorer ou permettrait la mise en marche d'un référendum à l'échelle locale.

Il y a beaucoup à faire. Alors que 10 p.c. seulement des municipalités du Québec sont fluorées, la moitié des villes de l'Ontario le sont. Le ministre des Affaires sociales doit agir au plus vite s'il espère introduire un régime dentaire pour enfants et protéger en même temps le budget provincial.

# Letters/Courrier

*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association Dentaire Canadienne. Vous êtes invités à participer à cette section du Journal.*

**Professional incomes in New Zealand**

While in New Zealand recently, I noticed the following details of average professional incomes in 1969-70: physicians $9,600, dentists $8,150, lawyers $9,450, and public accountants $7,531.

The earnings of dentists and physicians here are pitiful and the government has very strict control over their fees.

It just shows how grateful the dentists of Canada should be for the efforts put forward on their behalf by the Canadian and Ontario Dental Associations.

Please warn all professional people in Canada to guard their status and resist any encroachments.

*L. L. Crowley, DDS*
*50 Rosehill Ave*
*Toronto, Ont*

**Dental chair modernization**

Doctor Cragg shows us rather dramatically what can be done to modernize a dental office with minimal cost and a little inventiveness. His article (December Journal) raises several interesting points:

1. Anyone who has practised dentistry for several years and wishes to advance to a four or six handed pattern can do so with minimal expenditure on a trial basis.
2. Four or six handed dentistry is almost impossible with the old type vertical chair position. But it would be a shame to forego the attempt merely because one lacks a lounge type chair.
3. Dentists who so prefer may ask a carpenter to make the basic conversion, and a commercial upholsterer to complete the leather work.
4. A note of caution: the four or six handed approach is not just an equipment change, nor does Doctor Cragg say it is. It is a different approach to the practice of dentistry, utilizing auxiliary personnel in a more efficient, dynamic manner.
5. This approach requires a full-time operatory assistant, the use of rubber dam wherever possible, washed field technique, and so forth.
6. Anyone who still uses vintage equipment can change over to a new and modern set-up. It just takes the decision and the energy to implement it.

*A. J. Schutz, DDS*
*4695 Sherbrooke St W*
*Montreal, Que*

**Polycarboxylate cements**

I was pleased to read in your January issue the timely review of zinc polycarboxylate cements by D. C. Smith. He gives the reader an excellent bibliography for broader study of this material (see also Phillips et al. J Amer Dent Ass 81:1353, December 1970).

However, the most important point in this paper for me was the scope of zinc polycarboxylate cement for clinical use. Doctor Smith has indicated its excellent physical properties as reflected by basic research. Clinical research must now be carried out on its use in the mouth. Our dental schools and general practitioners should become involved in evaluating this and other new materials. Only with information from clinical trials over extended time periods can the scientist design better dental materials for the profession.

*J. M. Gourley, PhD*
*Dalhousie University*
*Halifax, NS*

**Time and trays**

A time for everything and it is time to protest. I swear it's not too late. The style being adopted for impression tray handles is striking at the roots of Canadian society. Having seen the baroque with its sensuous appeal to the senses come and go, I fear that Cyclopean columns are being adopted as motif by some laboratories, and such round handles cannot but overshadow the massive buttress of the sweeping canine fossa elements of a truly functional tray; these should be so solid as to take the observer's breath away.

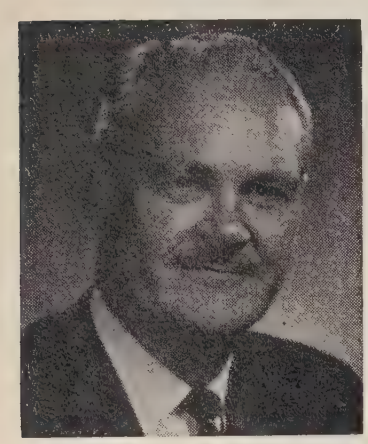
What was wrong with the Norman style? The sense of majestic magnificence as that tray handle swept up from the ridge and soared heavenward tore at the soul of man. Not only were structural necessity and functional requirements mated with a light delicate appearance, but also the style reflected the nature of the people. Edentulous in most cases, yes, but bilingual—the Norman English. Is this not a period where Gaul and Anglo-Saxon built many longstanding edifices—not artifice but truly representative of total man; "Non Angli sed angeli," cried Augustus.

A political element is creeping into tray handles. Let us put separatism where it belongs. The English have never forgiven William for being the Conqueror and letting Harold have it in the eye. I see the sinister plot. Some tray handles are now being fashioned in the English perpendicular style of the fifteenth century. This is an anti-Norman style, typical of modern politics. The sheer vertical elements will, of course, run into the upper or lower ridges. To clear the ridge and avoid the lip, the Norman curving vault support must be used.

In one last appeal, let us not be divided by polemics in tray handles, but back to bilingual trays. Write to your local lab and ask for Norman vaults (and if they do not know where he now works, I guess the battle is over).

*Jean Cives*

# EXECUTIVE DIRECTOR'S PAGE



**W. G. McIntosh, DDS**

It is time that a strong informed voice — independent of government — should ensure that a science policy be built up in the best interests of all Canadians.

Government increasingly has been involving itself. But because of the vacuum that exists in this area outside government, the increasing government interests have been building up to control of the various science policies or non-policies that include the health professions.

Twice in the last two months, I have attended meetings of the Council of the Association of the Scientific, Engineering and Technology Community of Canada — known commonly as SCITEC.

As described last fall in the Journal, SCITEC is a new national organization which is attempting to provide a forum for the scientific, technological and engineering groups in Canada to find common ground.

The CDA has one member and the Canadian Medical Association has two on the council of 29 representatives. This council is elected by the organization's parliament of 200.

What can SCITEC do? Where is it headed? While the objectives are clear enough, no one yet can properly answer those questions.

Let's go one step further. Where does dentistry fit in? What do we have in common with chemists, physicists, biologists, social scientists, engineers and agronomists? The best answer I can provide at this time is to state just a few example topics that will be studied and reported on in the next several months.

It is obvious that dentistry has a role to play in these important topics. They are: "Science Policy in Canada and World Utilization of Scientific Manpower Resources; Science and Social Obligations; Science and Poverty — Canada and Abroad; Balanced Utilization of Our National Resources."

Although dentistry's role is not yet crystal clear, the profession's absence would be conspicuous. As a health profession dentistry has responsibilities related to most, if not all, national issues in the various health fields.

Dentistry has a membership of 7,200 across Canada. Through membership in SCITEC, this representation is strengthened to a potential 150,000 members.

It is unrealistic to think that these 150,000 voices will be raised in unison in the interest of purely dental matters. But when we do have a common interest with the others, our voice will boom out across the nation. If Canadians benefit as a whole as a result, the dental profession gains as well.

Until SCITEC completes its initial studies, which will set the course of action, dentistry should continue to cooperate in its own small way in pursuit of common objectives of Canada's scientific community.

### Manitoba Dental Association

President Bill Spence and I enjoyed some fine western hospitality in some quite frigid weather during the annual meeting of the Manitoba Dental Association in Winnipeg, January 22-23. We spoke to the assembly and sat in on the business meetings, chaired by President Alvin Shinoff.

A dental prepayment plan for dentists, their families and employees was discussed, a detailed report of which should be studied by the profession in other provinces.

Doctor Jack Neilson, dean of the Faculty of Dentistry at the University of Manitoba arranged for President Spence and I to meet with senior dental students. After a short discussion we showed them the new CDA health education film, "Think About It."

The film was produced by University of Toronto dental students who, in their own way, slanted the message directly to high school students. Copies are being produced for distribution across Canada.

### Meetings

January marked the beginning of another round of CDA council and committee meetings at headquarters. A two day Secretaries' Conference was followed closely by a one day conference of the Council on Ethics and then by a two day meeting of the Survey Policy Committee of the Council on Education.

The reports of these bodies will reach the Board of Governors directly or through the Council on Education. The Secretaries' Conference does not submit a formal annual report. Minutes are distributed to Board members, to provincial corporate members and to the various CDA councils and sections.

### Secretaries' Conference

The Secretaries' Conference has been an annual event since 1960. It operates on a cost-sharing formula with the corporate members and provides an opportunity for the provincial and national secretaries to informally discuss administrative and other problems and programs of common concern. Each of the secretaries takes a turn in planning and chairing the conferences. Doctor Ken Pownall from Ontario steered the course this year and the man to take the helm in 1972 is Doctor Robert Le Blanc, secretary-registrar of Quebec's College of Dental Surgeons.

*The Ontario Dental Association and the College of Dental Surgeons of British Columbia are discouraging their members from entering into contracts with dental prepayment plans. To present our readers two sides of the picture, "Dialogue" invited Doctor R. K. Federchuk and Doctor P. E. Currie to outline their respective views on this important issue. An Oakville practitioner, Doctor Federchuk is also a member of the ODA Board of Governors. Doctor Currie of London is chairman of the Canadian Dental Association's Council on Dental Services.*

## Against contractual participation in prepayment plans

At the December 1970 Board of Governors' meeting of the Ontario Dental Association the following resolution was approved:

"Whereas the ODA has recently investigated the possibilities of active participation in dental prepayment plans and,

"Whereas to date no proposal has been received that is deemed to be in the best interest of the public, therefore be it

"*Resolved* that participation as a "contractual party" in any prepayment plan which is not endorsed by the Ontario Dental Association be considered contrary to ODA policy."

Members of the profession should be informed why the Board so strongly discourages "contractual participation" and about the consequences of individual involvement. A brief résumé of the events which led to this resolution is therefore in order.

The negotiations involved a single company. A special committee of the ODA met with this company during the summer and fall of 1970 to develop contracts for approval at the next board meeting.

A specific contract was prepared by the company, but not in consultation with the committee. It violated many of the principles held to be important by the profession and was incomplete by any legal standard. In addition the contract was unalterable, and the committee was given this ultimatum: accept the document within 24 hours or negotiations will be terminated. The answer of the committee, which had already spent several days deliberating what was in the best interest of the public and the profession, was a unanimous rejection. It did so on professional and legal grounds.

In October 1970 a letter was circulated by the same company to almost all dentists in Ontario. The letter outlined a proposed new dental prepayment company and made a direct approach to the dentists of Ontario to become contractual parties. This was done apparently in an attempt to bypass organized dentistry in Ontario.

The provincial government is becoming increasingly involved in dental care. Everything we agree to give up in negotiating with a single company is most certainly lost to us when we negotiate with the Ontario government. Relinquishing too much now will cause much grief later on. How we respond as a profession now will influence how the government will react to us in the future.

The dentists of Ontario have a responsibility to their profession to remain united on so crucial an issue. The integrity of organized dentistry in Ontario is being challenged. If we are to determine our future effectively, this challenge must be met with determination by a united and informed profession.

Ontario does not stand alone in discouraging dentists from contractual participation. A similar motion was passed recently by the Council of the College of Dental Surgeons of British Columbia. It advises dentists not to register as participating members of any prepaid plan, and to withdraw if already registered as participating members of a plan.

The ODA is in favour of and has agreed to 15 principles of dental prepayment. These principles are on record (revised 1969) and are available to any agency willing to negotiate. The profession cannot afford to ally itself to a plan which disregards them.

*R. K. Federchuk, DDS*
*331 Third Line*
*Oakville, Ont*

# Second thoughts about contractual participation in prepayment plans

The Ontario Dental Association's latest resolution on dental prepayment is arbitrary and unnecessarily restrictive. It discourages all contractual arrangements regardless of the conditions in the contract or the potential benefits to dentists and their patients.

Many facets of prepayment, contractual or otherwise, are open to criticism. But surely we do not need a shotgun to kill an ant.

A contractual prepayment plan may quite possibly add a new and positive dimension to the delivery of dental care in certain circumstances. So may group practice, or a closed panel. The point is that we will really never know until we try.

I therefore regret the ODA's defensive reaction and I deplore its recourse to a specious edict. These actions give the appearance that organized dentistry is afraid to grant its members sufficient latitude to experiment — a freedom I consider essential for the survival of our profession.

There is no single, inflexible panacea for the many problems that beset the delivery of dental care in a province as large as Ontario. Each region has characteristics that necessitate a combination of methods appropriate to its requirements. Realism dictates that these combinations should vary in accordance with need.

Why, then, this inordinate fear of innovation in the quest for dental health? And why all the tiresome platitudes, the dreary negativism?

Surely the profession is capable of more dynamic and imaginative leadership. Let us tell the world what we stand for, not what we condemn. And let us take a positive approach, judging each issue on its merits.

Bad resolutions are like bad laws; they should be changed. When the ODA Board of Governors meets again next May, I hope it will reassess its position and reverse the action taken last December.

*P. E. Currie, DDS*
*484 Central Ave*
*London, Ont*

*Yes, Sweden Has Fluoridation* – The favourite foreign claim of anti-fluoridationists is that fluoridation is illegal in Sweden. Connected with this claim is citing Swedish Nobel Prize winner, Hugo Theorell, as an opponent of fluoridation.

The fact is that Sweden's test project, Norrkoping, has operated since 1952 with a break of several years. Several other cities plan to start the measure and others have applied for permission to start.

The Norrkoping project was stopped temporarily when an organization called the "Health Furtherers" contested its legality. The court ruled against fluoridation in 1961 under the law that substances could be added to water only for purification or to make it fit for drinking. So, briefly, the anti claim was true.

However, in 1962 the Swedish parliament passed a bill legalizing fluoridation, with permission to be granted to individual projects. The Norrkoping project was reinstituted, but, to forestall the gathering opposition, the minister of the interior decided not to approve any further fluoridation projects for the next five years.

Doctor Theorell, an expert in enzyme chemistry at the Karolinska Institute in Stockholm, had dissented from the initial approval of fluoridation in 1959 by the Royal Swedish Medical Board. His attitude then was that experience in fluoridation was not sufficient to warrant its promotion.

Asked by the Norwegian government's expert committee on fluoridation, Doctor Theorell stated that his earlier concerns about fluoridation and its possible harm to enzymes had vanished. He told the committee that fluorides at the concentrations used in water fluoridation would not be harmful.

To substantiate his present position, Doctor Theorell submitted an exchange of correspondence with Doctor Linus Pauling, another Nobel Prize winning chemist. In the letters, Doctor Theorell and Doctor Pauling state their mutual belief that fluoridation at 1 ppm is beneficial to dental health without any harmful side effects.

## L'Association

### Le Manitoba augmente sa contribution à l'ADC

L'Association Dentaire du Manitoba a décidé de porter de $50 à $65 par membre sa contribution annuelle à l'Association Dentaire Canadienne. La décision a été prise lors du congrès provincial manitobain qui a eu lieu les 22 et 23 janvier.

Outre le Manitoba, six autres provinces paieront leur contribution cette année au taux de $65. Il s'agit de la Colombie Britannique, de l'Alberta, du Nouveau-Brunswick, de la Nouvelle-Ecosse, de l'Ile-du-Prince-Edouard et de Terre-Neuve. La Saskatchewan versera $60, le Québec $55 et l'Ontario $40 per capita.

Le Conseil d'éthique de l'ADC s'est réuni à Toronto le 13 janvier. Le but de cette assemblée était de préparer des commentaires sur le nouveau Code d'Ethique. On remarque, de gauche à droite, les docteurs W. K. Martin de Régina; J. M. Darcy de St-Jean, Terre-Neuve; R. M. LeBlanc, président du conseil, de Montréal; K. F. Pownall de Toronto; et G. E. Decker d'Edmonton.

### Décès du Brigadier-Général E. M. Wansbrough

Le Brig.-Gén. Elgin M. Wansbrough, vétéran des deux guerres mondiales et ancien Directeur des Services dentaires des Forces armées canadiennes, est décédé à Ottawa le 20 décembre, à l'âge de 72 ans.

Le Brig.-Gen. E. M. Wansbrough

Né à Bowling Green (Ontario), il reçut son diplôme du Collège Royal des Chirurgiens-Dentistes de l'Ontario en 1923 et ouvrit ensuite son cabinet à Shelburne.

Le général Wansbrough avait gagné la Médaille Militaire durant la première

*(Suite à la page 88)*

## Le Congrès national

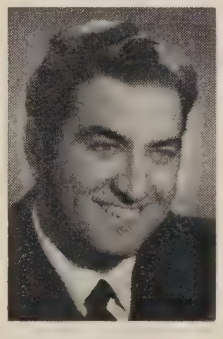
### Traduction simultanée au congrès

Un service de traduction simultanée a été prévu pour certains des exposés scientifiques des plus importants lors du congrès national de l'ADC qui se tiendra à Ottawa.

Les communications concernées sont celles des Drs Harry Rosen, de Montréal, sur la mise au point d'une occlusion en porcelaine, Isaih Lew, de New York, sur les implants dentaires et Joseph L. Bernier, de Washington, sur l'acceptation et la tolérance des implants par les tissus.

Ces conférences sont prévues les matins des jeudi 30 septembre et vendredi 1er octobre, à l'auditorium de la Bibliothèque nationale du Canada, 395 rue Wellington à Ottawa.

Le Dr William B. Donohue, de l'Université de Montréal, présentera également des communications en anglais et en français.



Harry Rosen

Isaih Lew

W. B. Donohue

J. L. Bernier

Le support à brochures de l'ADC qui a remporté un prix.

*(Suite de la page 87)*

guerre mondiale alors qu'il était mitrailleur. Entre les deux guerres, il fut officier dans l'unité de milice Lorne Scots.

Il entra au Corps dentaire canadien en 1939 et fut nommé Directeur général des Services dentaires en 1946.

La longue carrière militaire du général Wansbrough le conduisit successivement en Grande-Bretagne, en Europe, au Moyen-Orient et dans l'Extrême Orient.

Il fut promu Officier de l'Empire britannique en 1945 et nommé Chirurgien Dentiste Honoraire de la Reine en 1953. Il commandait le Corps dentaire royal canadien depuis 1965.

Dans une lettre adressée à madame Wansbrough, le directeur général de l'ADC, le Dr W. G. McIntosh, a fait l'éloge du Général Wansbrough, qui avait été "un meneur d'hommes, grand ami et l'un des meilleurs ambassadeurs de la profession dentaire et qui sera vivement regretté".

### Le support à brochures de l'ADC gagne un prix

L'Association Dentaire Canadienne s'est vu décerner par le "Point of Purchase Advertising Institute" de New York un "prix de présentation des produits" pour son support à brochures. Le prix a été remporté au concours annuel 1970-71 de cet institut.

Le support à brochures a été conçu pour l'ADC par la firme Carleton Cowan Public Relations et est fabriqué par Creative Display Advertising Ltd.

Solidement construit en plastique transparent, il peut s'employer sur un meuble ou pendu au mur pour exposer les brochures de l'ADC. Son prix de $23.75 ($24.94 en Ontario) comprend toutes les taxes de vente applicables et les frais d'expedition.

Demandez votre support à brochures en écrivant au service des commandes de l'ADC, 234 rue St-George, Toronto 180, Ont.

## Le Canada

### Une brosse à dents traitée au mercure serait dangereuse pour la santé

La Commission fédérale américaine du Commerce annonce que la brosse à dents "Doctor West's Germ Fighter", qui est traitée au mercure, pourrait en définitive être dangereuse pour l'usager.

La Commission déclare qu'elle n'est pas compétente pour interdire ces brosses, qui se vendent aussi au Canada, mais elle recommande l'arrêt du traitement au mercure.

La déclaration de la Commission accuse également de publicité trompeuse la corporation Chemway, de Wayne (New Jersey), qui prétend que la brosse à dents détruit les microbes susceptibles de provoquer des maladies buccales infectieuses. Un représentant juridique de la Commission a déclaré que les brosses à dents de Chemway sont traitées avec du mercure qui détruit les microbes mais n'affecte pas les caries ni autres affections buccales.

D'après l'agence UPI, un représentant de Chemway aurait déclaré que la firme avait récemment abandonné le traitement au mercure et ne faisait plus de publicité pour la brosse à dents "Doctor West's" depuis 1969. Il a déclaré que les brosses traitées au mercure étaient toujours en vente mais que la compagnie possède d'importants résultats d'essais indiquant qu'il n'existait aucun danger pour la santé.

Selon la Commission neuf millions de ces brosses à dents ont été vendues l'année dernière.

## LES DISCIPLINES DE LA SANTE FACE A DES TRANSFORMATIONS RADICALES EN ONTARIO

Des mesures nouvellement préconisées pour réformer la réglementation et l'enseignement des professions de la santé reposent essentiellement sur la création d'un Bureau de réglementation des disciplines de la santé qui serait indépendant et composé de cinq à sept membres non-professionnels, et relèverait du ministre de la Santé.

Cette proposition figure parmi les 53 "principes directeurs" qu'a présentés le 25 janvier le ministre de la Santé de l'Ontario, M. Thomas Wells. Fondés sur le rapport que l'Ontario Healing Arts Committee a déposé le 28 avril dernier, ils serviront de base aux pourparlers avec les professions de la santé et mèneront à un nouveau projet de loi qui doit être préparé vers la mi-avril.

### *Organismes de réglementation*

Le nouveau Bureau de réglementation des disciplines de la santé coordonnerait les activités des ordres professionnels actuels, comme le Collège Royal des Chirurgiens-Dentistes de l'Ontario, mais sans les remplacer. A l'inverse de l'Ontario Healing Arts Committee, M. Wells placerait cependant les collèges sous l'autorité du Bureau. Le ministre a mentionné les principaux principes directeurs suivants:

—L'intérêt public doit être le fondement de la réglementation de toutes les disciplines de la santé.

—Les mécanismes d'autoréglementation au sein des disciplines de la santé doivent être conservés dans toute la mesure du possible. Le rôle du public serait cependant reconnu si l'on incorporait un nombre important de non-professionnels (15 p.c.) aux organismes de réglementation tels que le Collège Royal des Chirurgiens-Dentistes de l'Ontario.

—Le droit des individus à recourir aux services des praticiens de leur choix doit être respecté.

—Le Bureau de réglementation des disciplines de la santé coordonnerait les activités des ordres professionnels actuels et des "Divisions" qui ont été proposées pour réglementer les disciplines de santé connexes comme l'hygiène dentaire. Le Bureau serait autonome et ne ferait pas partie du ministère de la Santé.

—Les ordres professionnels actuels maintiendraient leur indépendance mais ils seraient soumis aux exigences du Bureau afin d'assurer la coordination et l'intégration nécessaire. Les divisions qui dirigeraient les autres disciplines de santé soumettraient des recommandations au Bureau et, lorsque le Bureau les aurait approuvées, appliqueraient les nouveaux règlements. Aucune discipline de santé n'en réglementerait une autre.

M. Wells a souligné que les ordres professionnels doivent être indépendants de toute association volontaire établie par toute discipline de santé. "Une association volontaire ne devrait être associée, sous aucun prétexte, de façon corporative, directement ou indirectement, avec un organisme de réglementation".

Il a déclaré que les ordres et les divisions seraient responsables des règlements et des normes d'exercice ou de l'obtention d'un certificat ainsi que de la discipline de leurs membres. Ils seraient également chargés d'évaluer la compétence des personnes formées à l'extérieur de l'Ontario. L'obtention d'un certificat et l'autorisation d'exercer ne dépendrait pas de l'âge, du sexe, de la nationalité ou de la durée de la résidence en Ontario.

*Appel et application*

L'une des fonctions du Bureau de réglementation des disciplines de la santé serait de s'occuper des appels émanant du public ou de praticiens affectés par une décision d'un ordre ou d'une division. Ce serait d'abord les ordres et divisions qui s'occuperaient des plaintes émanant du public et des praticiens, mais le Bureau entendrait les appels résultant des décisions des ordres et divisions. En dernier lieu, tout citoyen aurait encore le droit d'avoir recours aux tribunaux.

Tout en demeurant responsables des normes d'exercice et de la discipline de leurs membres respectifs, les ordres seraient libérés de la responsabilité de faire respecter l'interdiction d'exercer imposée à une personne non-autorisée. Des procureurs de la couronne compétents en seraient chargés.

*Enseignement*

Le ministre de la santé a déclaré que la formation de tous les travailleurs de la santé devrait être la responsabilité d'institutions d'enseignement plutôt que d'organismes de réglementation. Les universités seraient les premières responsables pour les professions enseignées à l'université. L'enseignement des autres disciplines de santé reviendrait à d'autres organismes qui auraient la charge des études appropriées et seraient placés sous l'autorité du ministre de l'éducation.

"L'agrément des facultés devrait devenir la responsabilité d'un organisme qui pourrait être représentatif mais devrait demeurer indépendant des institutions d'enseignement, des organismes de réglementation ou des associations volontaires", a déclaré le ministre.

Le diplôme d'une institution reconnue serait la principale qualification pour obtenir l'autorisation d'exercer. Les diplômés d'institutions équivalentes situées à l'extérieur de l'Ontario recevrait l'autorisation d'exercer sans autre examen; ceux dont la formation serait moindre devraient rehausser leurs qualifications avant de recevoir l'autorisation d'exercer.

M. Wells a rejeté l'adoption immédiate du renouvellement obligatoire de l'autorisation d'exercer mais s'est prononcé en faveur des programmes d'éducation permanente et des cours de recyclage pour aider les praticiens à conserver un haut degré de compétence.

Les principes directeurs préconisent aussi la facturation détaillée, afin de réduire les malentendus sur des questions telles que l'étendue des services requis, les appareils nécessaires, et le coût des services. Mais ils ne mentionnent ni les barèmes d'honoraires ni la négociation des honoraires.

## Chronique internationale

### Un dentiste canadien aux Antilles

Quinze cents écoliers de deux îles antillaises ont fait la connaissance d'un dentiste canadien en la personne de G. B. Shillington, originaire de Manotick, près d'Ottawa, qui y a travaillé en juin dernier.

Le Dr. Shillington, qui réside maintenant à Freeport (Grand Bahama) était le premier volontaire d'un projet d'assistance dentaire organisé par l'Association Dentaire Canadienne et le Service Administratif Canadien Outre-mer (SACO).

Le Dr Shillington, officier retraité du Corps dentaire royal canadien, répondait à un appel de l'administrateur des Iles Turk et Caicos au cours d'une absence temporaire du seul dentiste de l'endroit.

Ces îles font partie d'une chaîne qui s'étend au sud-est des Bahamas. La population est d'environ 6,000 personnes, surtout des femmes, des enfants et des vieillards puisque la plupart des hommes valides vont travailler en dehors des îles.

Le dentiste des îles a établi un cabinet à Cockburn Town, la capitale de l'Ile Grand Turk. Il se rend périodiquement à South Caicos, où se trouve une clinique médicale équipée d'une petite salle d'opération dentaire.

De nombreux enfants examinés par le Dr Shillington avaient l'émail tacheté. Plus de la moitié n'avaient pas besoin d'obturations ni d'extractions, mais les dépôts de tartre étaient très répandus et l'on trouvait de nombreux cas de béance antérieure sans explication apparente.

Malgré le manque d'équipement moderne et de locaux, le Dr Shillington a pu soulager la douleur et le malaise d'un bon nombre de ses patients. Il a aussi fait l'éloge du dentiste permanent qui continue son travail dans des conditions difficiles.

Quatre autres dentistes canadiens vont se rendre à Sainte-Lucie, autre île antillaise, au début de l'année 1971. On s'attend à d'autres demandes d'assistance de la part des Antilles. Les lecteurs qui désireraient se porter volontaires peuvent s'adresser au Directeur général de l'Association Dentaire Canadienne.

### Conférence de biologie buccale à Zurich, en Suisse

Les dentistes canadiens sont invités à assister, du 8 au 10 septembre, à la 5e Conférence internationale de biologie buccale, organisée par l'Association Internationale pour la Recherche Dentaire. Elle aura lieu à Horgen, à quelque 10 milles de la ville de Zurich.

La conférence aura pour thème: "Les enzymes en biologie buccale". Le Canada sera représenté par le Dr M. S. Chang, de Montréal, qui traitera des microcapsules semi-perméables utilisées pour le remplacement d'enzymes. Les autres sujets traités toucheront au rôle des enzymes dans l'inflammation générale et gingivale; dans l'émail, le tissu conjonctif et l'os; et enfin dans la salive et la plaque dentaire.

Les formules d'inscription peuvent être obtenues en s'adressant à DANZAS LTD, Bahnhofplatz 9, CH-8023 Zurich, Suisse. La date limite pour l'inscription est fixée au 15 juin 1971.

Pour tous les autres renseignements concernant la conférence, écrire au Secrétaire CIBB, Institut dentaire, Boîte postale 138, CH-8028, Zurich, Suisse.

## Les organismes dentaires

### Nouveau Bureau exécutif de l'Association des Chirurgiens-Dentistes du Québec

Le Conseil d'Administration de l'Association des Chirurgiens-Dentistes du Québec s'est réuni le 12 décembre et a élu son nouveau Bureau exécutif.

Le Dr Hubert LaBelle, de Montréal, a été réélu président. Le Dr Georges Lepage, de Lévis, reste 1er vice-président. Le Dr Berl Mendel, de Montréal, devient 2e vice-président. Le secrétaire est le Dr Pierre Jean Trudeau, de Montréal. Le nouveau trésorier est le Dr Robert Lambert, de Granby. Les Drs Roger Grégoire et Claude Chicoine, tous deux de Montréal, deviennent conseillers.

Le Conseil d'Administration a également choisi le Dr Paul Lacoursière, de

Paul Lacoursière

Hubert La Belle

Trois-Rivières, comme président d'assemblée.

Il y avait eu élection le 30 novembre dans les régions 1, 2, 3, 5, 7, 9, 11. Dans les régions 2, 3, 5, 7, 9 et 11, les candidats ont été élus par acclamation. Ce sont les docteurs G. Lepage, Y. Poulin, P. P. Prud'Homme, J. Désilets, R. Houle, Y. Cantin et R. Lambert.

Dans la région numéro 1, quatre sièges étaient éligibles. Huit candidats se sont présentés et les docteurs C. Chicoine, J. Fiset, R. Grégoire et M. Tenenbaum ont été élus.

Suite à la démission du Dr Luc Vinet, le Conseil d'Administration a choisi le Dr Robert Dupont pour le remplacer au siège no 9 de la Région 1.

L'ACDQ a également adopté la formation d'un comité de liaison auprès de l'ADC.

### Nouvel exécutif des chirurgiens buccaux du Québec

L'Association des Spécialistes en Chirurgie buccale du Québec vient d'élire un nouveau Conseil exécutif. Le Dr André Charest, de Québec, a été choisi président. Le vice-président est le Dr Mervyn Gornitsky, de Montréal; le secrétaire: Dr Claude Madore, Montréal; le trésorier: Dr Edward Slapcoff, Montréal; les conseillers: les Drs Kenneth C. Bentley et Paul Mercier de Montréal.

### Le Dr Levitt devient président des orthodontistes du Québec

Le Dr H. L. Levitt, de Montréal, vient d'entrer en fonction comme président de l'Association des Orthodontistes de la Province de Québec. Il succède au Dr J. R. Nadeau, également de Montréal. Les Drs Claude Baril et M. D. Rennert, tous deux de Montréal, ont été nommés respectivement vice-président et secrétaire. Le trésorier est le Dr J. E. Lemay de Sherbrooke tandis que le Dr Lucien Bossé de Dorval est membre actif sans portefeuille.

## L'enseignement dentaire

### Résultats des examens du Collège Royal

Le Collège Royal des Chirurgiens-Dentistes du Canada a annoncé les noms des dentistes québécois qui ont subi avec succès les examens de septembre et décembre derniers.

Les candidats ayant obtenu la première partie de l'examen (Sciences fondamentales) le 21 septembre sont:

*Chirurgie buccale*–Guy Maranda, de Québec.

*Orthodontie*–S. Miller, de Pointe Claire.

*Prothèse*–S. M. Kennedy, de Westmount et M. Pinchuk, de Montréal.

La deuxième partie de l'examen (Oral), les 4 et 5 décembre, a été subie avec succès par E. M. Hershenfield de Montréal, en périodontie.

## L'économie

### Soins dentaires aux enfants et assistés sociaux: l'ACDQ fait le point

Devant la Commission parlementaire des Affaires sociales, convoquée pour étudier le bill 69, l'Association des Chirurgiens Dentistes du Québec a voulu expliquer très clairement sa position:

"L'ACDQ souhaite voir la couverture des soins dentaires aux enfants dirigée non seulement sur les traitements mais principalement sur l'éducation et la prévention, seule façon adéquate d'assurer des résultats valables à longue échéance. L'une des principales mesures préventives, d'ailleurs préconisée par la Commission d'Enquête sur la Santé et le Bien-être social, est la fluoration des eaux potables. Cette mesure qui abaisse le taux de carie de 60 à 65 p.c., fait universellement reconnu, est très peu dispendieuse, assure une meilleure santé dentaire et conduit à des économies considérables sur les coûts d'un régime de soins dentaires.

"Malheureusement à date, cette mesure, recommandée par toutes les associations et institutions dentaires, se heurte à un refus systématique de la part de certaines autorités politiques, principalement à Montréal. L'ACDQ désire que le gouvernement dépolitise la fluoration et en fasse un fait obligatoire pour toutes les municipalités du Québec.

"L'ACDQ entend également négocier et non se faire imposer le champ et les modalités d'application d'un régime de soins dentaires pour les enfants.

"Quant aux médicaments gratuits pour les assistés sociaux, l'association ne peut que féliciter le gouvernement d'une telle décision, en autant que personne ne soit lésé dans ses biens et droits. Suite à cette mesure cependant, il est inconcevable que l'assisté social ait encore à payer pour des soins dentaires alors qu'il peut profiter gratuitement des soins de tous les autres professionnels de la santé.

"Depuis de nombreuses années, les chirurgiens dentistes se plaignent vainement de l'état discriminatoire qui gouverne les soins dentaires pour les assistés sociaux. Il est à souhaiter que la commission incite le gouvernement à corriger cet état de choses.

"A ceux qui s'étonnent que les chirurgiens dentistes soient les seuls professionnels de la santé à ne pas encore avoir signé d'entente avec le gouvernement concernant l'assurance-maladie, l'ACDQ souligne qu'elle attend depuis près d'un mois la réponse du gouvernement concernant les derniers points en discussion".

### Québec: la fluoration et les auxiliaires d'abord

Le gouvernement du Québec entend favoriser la fluoration de l'eau et la formation de personnel dentaire auxiliaire plutôt que d'étendre rapidement les bénéfices dentaires du nouveau régime d'assurance-maladie à l'ensemble de la population.

Cette déclaration a été faite par M. Claude Castonguay devant la Commission parlementaire des Affaires sociales réunie le 20 février à Québec.

Le président du Comité des assistés sociaux du Québec, M. Paul de Boies, avait par ailleurs demandé au gouvernement de payer les soins dentaires à tous les enfants défavorisés, plutôt qu'aux enfants de sept ans et moins

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Mme Juliette Matte d'Ottawa, la secrétaire du Bureau national d'examen dentaire du Canada, a visité le siège social de l'ADC à Toronto le 14 janvier. On la reconnaît sur cette photo en conversation avec le rédacteur, le docteur F. H. Compton.

appartenant à des familles riches, mais M. Castonguay lui a laissé peu d'espoir.

Il semble que les débuts du régime de soins dentaires pour enfants sera retardé (il devait commencer au printemps). Le gouvernement n'a pas encore décidé quels soins seront couverts ou exclus (orthodontie, etc) et n'a même pas encore commencé à discuter des modalités avec les organismes négociateurs représentant la profession dentaire au Québec.

### Québec: Création d'un nouveau ministère

Avec l'adoption définitive du bill 42, les ministères québécois de la Santé, de la Famille et du Bien-être social sont maintenant remplacés par le nouveau ministère des Affaires sociales du Québec.

Le titulaire du nouveau ministère, qui demeure M. Claude Castonguay, a pour fonction, d'après la teneur de la loi, d'élaborer et de proposer au gouvernement des politiques relatives aux affaires sociales pour le Québec dans les domaines de la santé, des services sociaux ainsi que de l'aide, des allocations et des assurances sociales, de façon à assurer une qualité et un niveau de vie convenables à chaque individu et à chaque famille du Québec. Le ministre doit voir à la mise en oeuvre de ces politiques, en surveiller l'application et en coordonner l'exécution.

## La recherche

### Le contour des dents affecte la susceptibilité à la carie

Des chercheurs dentaires ont identifié une caractéristique génétique responsable de la résistance ou de la susceptibilité à la carie chez le rat, et qui pourrait expliquer pourquoi certains changements diététiques modifient l'incidence de la carie.

Il y a 30 ans, H. R. Hunt et C. A. Hoppert ont créé deux races de rats consanguins, l'une susceptible, l'autre résistante à la carie. En 1967, des chercheurs américains découvraient cependant qu'une modification de l'alimentation des animaux pouvait masquer les propriétés "héréditaires".

En présence de microbes producteurs de caries, des modifications diététiques produisaient chez les rats dits "résistants" des caries plus importantes que chez les rats qui étaient auparavant "susceptibles".

Après avoir soigneusement comparé, à l'aide d'un microscope binoculaire, chacun des cinq sillons longitudinaux dans les molaires inférieures de 24 rats de chaque race, les Drs Hunt, Hoppert et Samuel Rosen signalent maintenant que c'est le contour des sillons sur la surface occlusale des premières et deuxièmes molaires qui détermine le modèle "génétique".

Les sillons des animaux susceptibles sont modelés de façon à retenir les particules alimentaires beaucoup plus facilement que les fissures comparables des animaux résistants.

La rétention alimentaire dépend largement de la consistance du régime. Chez le rat susceptible à la carie, par exemple, un sillon de la première molaire mandibulaire peut retenir une particule de riz de la même manière qu'une balle coincée entre le pouce et l'index, alors que le riz peut aisément s'échapper de la même fissure chez le rat résistant.

Ainsi, lorsque le rat "susceptible" consomme des particules de riz à gros grains, celles-ci se logent habituellement dans la fissure transversale et les particules plus fines sont retenues au fond de la fissure. Les bactéries peuvent alors s'y développer et transformer par fermentation les hydrates de carbone en acides générateurs de carie.

### Un chirurgien buccal en faveur de la kétamine

La kétamine, une nouvelle drogue révolutionnaire, est "sans doute celui des anesthésiques disponibles qui présente le moins de danger", mais elle doit être administrée par des personnes parfaitement formées en anesthésiologie.

Le Dr William Greenfield, président du comité de l'anesthésie de la Société Américaine des Chirurgiens Buccaux, a prononcé cette mise en garde et cet appui à la drogue lors de la récente réunion scientifique de cette société à Miami (Floride).

Le Dr Gunter Corssen, de Birmingham (Alabama), qui a mis au point la kétamine, participait à la discussion.

La drogue, à laquelle on a reproché de provoquer des effets secondaires du genre LSD, est vendue sous les noms de Ketalar (Parke-Davis) et de Ketaject (Bristol-Myers).

Le Dr Corssen a expliqué que la nouvelle drogue était complètement différente des autres anesthésiques. Les autres drogues, a-t-il dit, dépriment tout le système nerveux central du patient, et l'endorment, tandis que la kétamine n'agit que sur certaines parties de l'organisme, et n'affecte pas les autres, ou même les stimule.

Le Dr Greenfield a expliqué que la drogue agit surtout en bloquant l'information sensorielle tout en laissant le patient conscient.

A propos des effets secondaires, présumément semblables à ceux du LSD, le Dr Greenfield a déclaré qu'il ne trouvait pas la comparaison valable car la kétamine est contrôlable et prévisible dans ses effets, et du point de vue thérapeutique, elle fournit une analgésie totale, ce qui est le but recherché.

Le Dr Corssen a mentionné des domaines où, croyait-il, la kétamine pouvait être employée, surtout dans les cas difficiles de patients qui ne peuvent tolérer les anesthésiques ordinaires parce qu'ils conduiraient à la dépression de nombreuses fonctons de l'organisme.

Il a ajouté que l'on était en train de démontrer que la kétamine était sans danger pour les cardiaques, surtout pour les malades qui ne pouvaient tolérer les effets d'un anesthésique classique.

### Observations sur les mécanismes de formation de la plaque

Des chercheurs du Forsyth Dental Centre de Boston ont signalé de nouvelles observations sur la formation de la plaque – par adhésion directe des bactéries à l'émail de la dent et par adhésion en présence de salive.

Le Dr R. J. Gibbons a trouvé que la salive cause l'adhésion de certains des micro-organismes de la plaque dentaire humaine. Sur 62 types de bactéries prélevées sur la plaque dentaire humaine, 28 s'agglutinaient dans la salive entière ou dans le liquide extrait des glandes parotides ou sous-maxillaires. Cette adhésion pourrait former la première couche de bactéries sur la dent et permettrait aux colonies bactériennes de se constituer et d'attaquer les dents et la gencive.

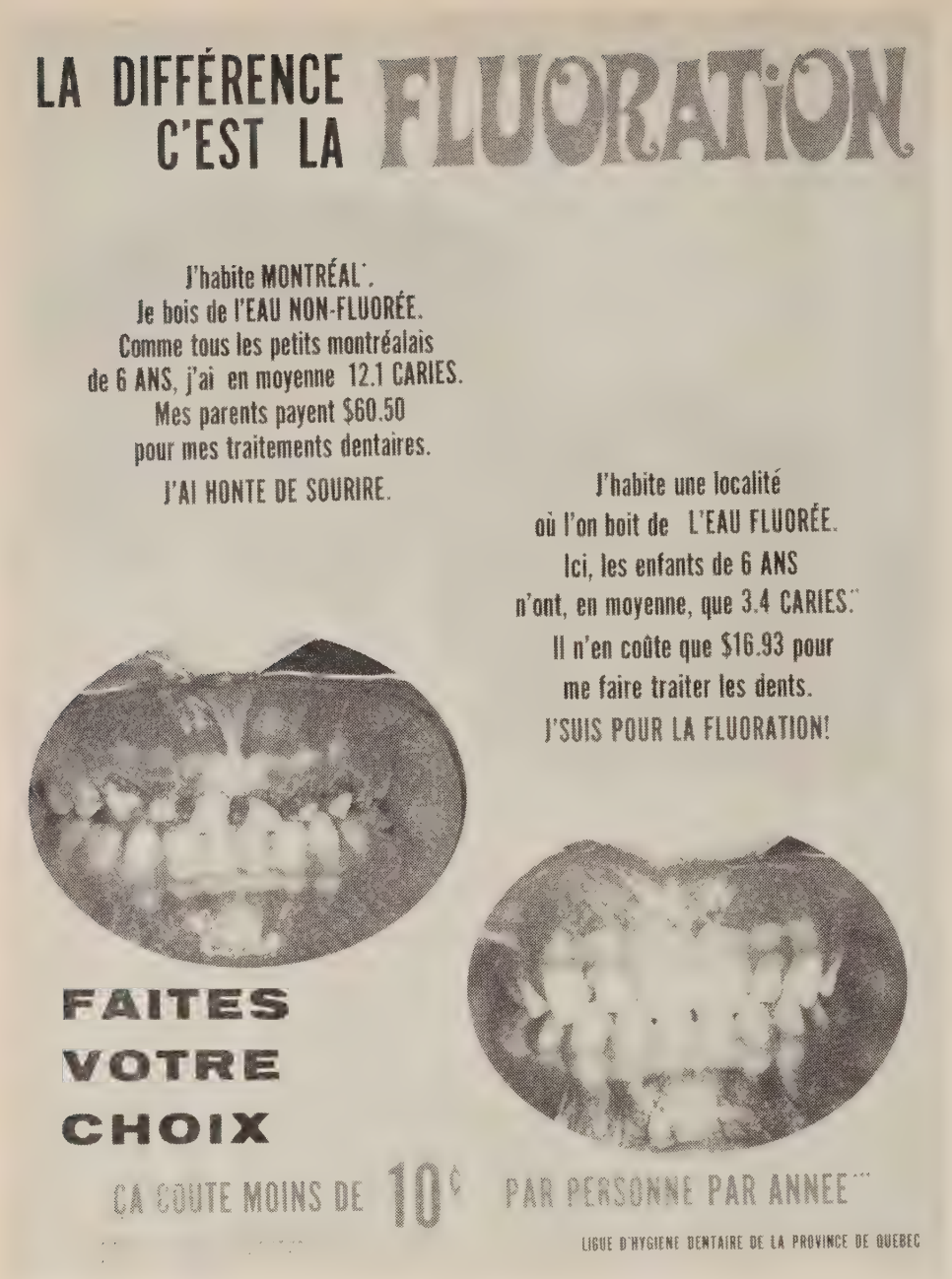
Un autre membre de l'équipe du centre Forsyth, le Dr J. Van Houte, a signalé que 46 des 62 genres de bactéries étudiées peuvent adhérer directement à l'émail de la dent. Au bout de 30 minutes, l'un de ces types y adhérait si fermement qu'il était impossible de l'en séparer par lavage ou par centrifugation.

Gibbons et Van Houte ont noté de grandes différences dans le degré d'adhésion de diverses bactéries buccales. Certaines n'adhéraient pas à l'émail dentaire dans l'éprouvette, ce qui pourrait expliquer pourquoi des types divers abondent dans la bouche mais non sur les dents.

Des études précédentes ont montré que certaines bactéries, comme Streptococcus mutans, synthétisaient le dextran qui, en tant qu'adhésif, leur permettrait de s'attacher aux surfaces lisses des dents et de les attaquer. Cependant, la plupart des bactéries isolées à partir de la plaque humaine sont incapables de synthétiser le dextran ou de s'agglutiner en sa présence.

### Nouvel alliage renforcé par des fibres

Deux chercheurs du Brooklyn Polytechnic Institute à New York ont créé un nouvel alliage aluminium-zinc renforcé par des fibres, au moyen d'un procédé




qui ne requiert qu'un réglage précis des températures.

Les alliages qui renferment des fibres métalliques microscopiques, disposées parallèlement et uniformément dans leur masse, sont plus solides que les autres.

Découvert il y a deux ans, un autre alliage en or et nickel renforcé par des fibres pourrait résister à la corrosion et à la ternissure. Il pourrait alors être utilisé dans les attelles dentaires, les fils orthodontiques et les prothèses. Les nouveaux alliages que cette méthode facile permettra pourraient se révéler utiles dans la fabrication des appareils orthopédiques ainsi que pour de nombreux produits industriels.

### Les soins péridentaires doivent débuter à un jeune âge

Il est possible de prévenir presque complètement les affections du parodonte si le traitement débute à un jeune âge, a déclaré un chercheur dentaire de l'Alabama, lors du congrès scientifique de l'Association Dentaire Américaine en novembre dernier. Selon le Dr Emanuel Cheraskin, de la faculté dentaire de l'Université de l'Alabama, les traitements préventifs appliqués aux adultes devraient effectivement être dispensés aux jeunes.

Le Dr Cheraskin a expliqué que, chez les adultes, les techniques préventives provoquent surtout un ralentissement de la destruction du parodonte. Dans quelques cas, le processus peut être arrêté et parfois renversé dans une certaine mesure. Si ces connaissances thérapeutiques étaient appliquées à un plus jeune âge, elles serviraient en fait à prévenir les affections du parodonte.

Le Dr Cheraskin pense que des influences prénatales peuvent jouer un rôle dans la genèse de la gingivite. Des études effectuées sur des rats ont montré que les animaux recevant divers régimes prénataux et de présevrage présentaient de nettes différences dans l'apparition du tartre au stade du présevrage.

Les rats nourris avant la naissance et avant le sevrage avec un régime à haute teneur en graisses présentaient une plus grande quantité de tartre après leur sevrage. Les rats recevant un régime élevé en protéines présentaient également une grande accumulation de tartre. Ceux qui étaient simplement nourris de pain et de lait (combinaison d'hydrates de carbone et de protéines) présentaient le moins de tartre. Tous les rats recevaient le même régime après sevrage.

A partir de ces études, le Dr Cheraskin a conclu "qu'il est évident que la santé ou la maladie du parodonte dépendent, en partie, de facteurs diététiques précoces".

## La fluoration

### Chicoutimi sera peut-être fluorée

Le conseil municipal de la ville de Chicoutimi a chargé le comité d'hygiène d'analyser tous les avantages et les inconvénients de la fluoration de l'eau. Si le rapport est concluant, la municipalité entend traiter l'eau dès 1971.

Selon un rapport technique déjà préparé, le coût annuel du fluorure de sodium serait d'environ $4,000.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 janvier 1971:

*Fonds à revenu fixe* $11.526;

*Fonds d'actions ordinaires* $22.934.

L'avoir total (valeur marchande) du régime se montait à $9,548,654.85.

Au cours du mois précédent, les transactions, achats et ventes, ont été les suivantes: achat 2,000 actions de la Banque de la Nouvelle-Ecosse, 3,000 actions de Canadian Superior Oil et 2,000 actions de Placer Development; vente 600 actions de McIntyre Porcupine Mines, 10,000 actions de Union Gas of Canada Ltd, 1,000 actions de Corning Glass Works, 1,500 actions de Reed Shaw Osler, 2,000 actions de Dome Petroleum, 3,000 actions de Barnes Hind Pharmaceuticals et 9,000 actions de Northern and Central Gas.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

Looking over final selections for the essay program planned for the 1971 CDA national convention in Ottawa are members of the CDA Convention Committee during a recent meeting at CDA Headquarters. Shown from left are: Convention Chairman J. D. Purves, CDA President W. J. Spence and chairman of registration, Murray Cornish. Plans for the meeting, to be held September 30-October 2, are well advanced.

## National Convention

### Simultaneous translation planned

Simultaneous interpretation in English and French will be provided for several outstanding scientific presentations at the CDA national convention in Ottawa.

Included are papers on developing an occlusion in porcelain, by Harry Rosen, Montreal; dental implants, by Isaih Lew, New York City; and tissue acceptance and tolerance of implants, by Joseph L. Bernier, Washington.

These papers are scheduled for Thursday and Friday morning, September 30 and October 1, in the auditorium of the National Library of Canada, 395 Wellington St, Ottawa.

Additional English and French papers in oral surgery will be presented by William B. Donohue of the University of Montreal.

Isaih Lew

W. B. Donohue

Montreal dentists Benjamin Sedlezky, left, and B. Harvey Wiener will discuss new developments in endodontics at the CDA national convention in Ottawa.

## International Items

### Canadian dentist visits Caribbean islands

Fifteen hundred schoolchildren on two Caribbean islands met their first Canadian dentist when G. B. Shillington, formerly of Manotick near Ottawa, visited Grand Turk and South Caicos Islands last June.

Doctor Shillington, who now makes his home in Freeport, Grand Bahama, became the first volunteer under the Caribbean dental aid project sponsored by the Canadian Dental Association and the Canadian Executive Service Overseas (CESO).

The former Royal Canadian Dental Corps officer answered a call for help from the administrator of Turks and Caicos Islands during the temporary absence of the only local resident dentist.

The islands are part of a chain situated southeast of the Bahama Islands. Women, children and the aged predominate in the population of about 6,000, as most of the able bodied men go overseas to work.

The islands' dentist has an office in Cockburn Town, the capital on Grand Turk Island. Periodically, he also visits South Caicos which has a medical clinic with a small dental operating room.

Many of the children seen by Doctor Shillington had mottled enamel. More than half required no fillings or extractions; but calculus was widespread and there were many cases of anterior open bite, for which there was no apparent explanation.

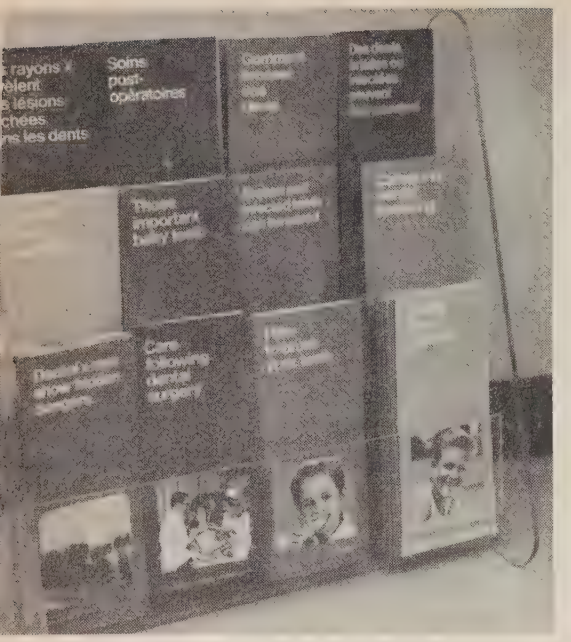
Despite the lack of modern equipment and facilities Doctor Shillington was able to alleviate much pain and discomfort for many of his patients. He also praised the islands' dentist for carrying on a practice under trying circumstances.

Four more Canadian dentists are going to another Caribbean island, St. Lucia, during the early part of 1971. Further requests for aid are also expected from other islands. Readers who would like to volunteer their services should contact the executive director of the Canadian Dental Association.

### US government offers model x-ray law

An American government agency has prepared model legislation to aid states that wish to set minimum educational and training standards for persons using ionizing radiation in the healing arts.

Under the model law, state certification of competence would have to be obtained by all categories of users of ionizing radiation for the diagnosis and treatment of disease. The requirement




CDA's award-winning pamphlet holder

would apply not only to medical and dental assistants, but also to physicians, dentists and other licensed practitioners.

The model legislation calls for ionizing radiation-user certification based on minimum education, training and experience and on examination results demonstrating the prescribed level of competence. Provision is made for the formation of separate medical and dental radiographic technology boards of examiners.

The legislation would provide for the issuance of general certificates to authorize licensed practitioners to apply radiation to any part of the human body. A technologist with the required training and experience could be granted a general certificate to apply radiation to any portion of the body, but only under the supervision of a certified licensed practitioner.

The model provides for two other categories of certification. One, a limited certificate, would allow a practitioner, such as a dentist, to expose specific parts of the body to radiation. The other, a limited permit, would allow a person with less than two years' training to expose a limited body area under the supervision of a certified licensed practitioner.

The use of x-radiation in medical and dental diagnosis has been identified by the US government as the greatest single source of man-made radiation reaching people in the United States.

## The Association

### CDA pamphlet holder wins award

The Canadian Dental Association has earned an "Outstanding Merchandising Award" for its pamphlet holder from the Point of Purchase Advertising Institute of New York. The award was won at the Institute's 1970-71 annual award contest.

The pamphlet holder, designed for the CDA by Carleton Cowan Public Relations, is manufactured by Creative Display Advertising Ltd.

Sturdily constructed of transparent plastic, it can be used for desk-top or wall display of CDA pamphlets. The price of $23.75 ($24.94 in Ontario) includes all applicable sales taxes and shipping charges.

For your pamphlet rack, write to: CDA Order Section, 234 St. George St, Toronto 180, Ont.

### Manitoba raises CDA grant

The Manitoba Dental Association has voted to increase its annual grant to the Canadian Dental Association from $50 to $65 per registered member in 1971. The decision was made at the Manitoba Mid-Winter Convention January 22-23.

Six provinces, besides Manitoba, will pay at the $65 rate this year. They are British Columbia, Alberta, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland. Saskatchewan will pay $60, Quebec $55 and Ontario $40 per capita.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on January 31, 1971:

*Fixed Income Fund* $11.526;

*Common Stock Fund* $22.934.

Total assets (market value) of the plan were $9,548,654.85.

The following portfolio purchases and sales occurred during the preceding month: bought 2,000 shares Bank of Nova Scotia, 3,000 shares Canadian Superior Oil and 2,000 shares Placer Development; sold 600 shares McIntyre Porcupine Mines, 10,000 shares Union Gas of Canada Ltd, 1,000 shares Corning Glass Works, 1,500 shares Reed Shaw Osler, 2,000 shares Dome Petroleum, 3,000 shares Barnes Hind Pharmaceuticals and 9,000 shares Northern and Central Gas.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Canada and the Provinces

### Advocate dental records for all Air Canada flight personnel

Air Canada has been urged to maintain records with up-to-date dental charts, bitewing radiographs and names of personal dentists for all air crew personnel. The recommendation was made to the company's chief medical officer by J. D. Purves, Toronto, president of the Canadian Society of Forensic Odontology. It arises out of experience gained with the identification of victims from Air Canada Flight 621 which crashed at Woodbridge, Ont, last July 5.

Doctor Purves also urged the company to maintain bitewing radiographs and names of personal dentists for all personnel who are eligible to receive flight passes (there were 22 such persons on board Flight 621).

The recommendations are to be considered at a forthcoming meeting of the International Air Transport Association.

## Dental Organizations

### Doctor Levitt installed as president of Quebec orthodontists

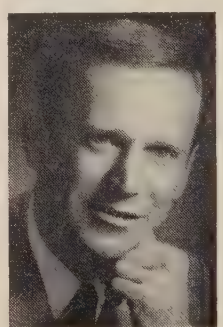
H. L. Levitt of Montreal was recently installed as president of the Province of Quebec Association of Orthodontists, succeeding J. R. Nadeau, also of Montreal.

Named as vice-president and secretary were Claude Baril and M. D. Rennert, both of Montreal. The treasurer is J. E. Lemay of Sherbrooke and active member without portfolio is Lucien Bossé of Dorval.

### Quebec dental group re-elects Doctor LaBelle

Hubert LaBelle, Montreal, was re-elected president of the Quebec Dental Surgeons Association on December 12. Georges Lepage, Lévis, remains as first vice-president. B. L. Mendel, Montreal, was elected second vice-president.

P. J. Lacoursière, Trois-Rivières, was named QDSA speaker. Elected with Doctor Lacoursière were Robert Lambert, Granby, treasurer, and Pierre-Jean Trudeau, Montreal, secretary. Roger Grégoire and Claude Chicoine, both of Montreal, were named to the organization's executive council.



Hubert La Belle

Paul Lacoursière

### Doctor Dorion is president of Montreal Dental Club

E. S. Dorion

The new president of the Montreal Dental Club is E. S. Dorion. Elected at the club's seventy-third annual meeting, he succeeds G. M. Dundass who has been named honorary president. J. Vincelli is president-elect.

Other officers are: W. Lambert, treasurer; R. G. Jones, historian; H. J. Smart, chairman of the Fall Clinic; and J. F. McMullan, secretary.

Elected as directors are: W. H. Boyles, J. T. Elo, J. F. Giacomelli, P. Guilbault, P. L. Samis and A. J. Schutz.

## Dental Education

### Educational opportunities

*Advanced programs*

The Department of Periodontology, University of Manitoba, Winnipeg, offers a three year program with research and clinical experience leading to an MSc degree in oral biology and a certificate in clinical periodontics. The program is intended for candidates interested in future careers in academic dentistry. Applications are now being accepted for September 1971.

For further information, write to S. M. Borden, Head, Department of Periodontology, University of Manitoba, 780 Bannatyne Ave, Winnipeg 3, Man.

### Washington State society makes continuing education mandatory

The Washington State Dental Association has established continuing dental education requirements for membership in the association.

Colorado has the only other state society to have such a requirement. Licensing boards in three other states require continuing education for licence renewal.

Required by the Washington association are 48 clock hours of continuing education in dentistry. Acceptable for this purpose will be attendance at lectures, study clubs, university postgraduate courses, scientific sessions, research and graduate study.

## ONTARIO HEALTH DISCIPLINES FACE RADICAL CHANGES

Creation of an independent Health Disciplines Regulation Board, composed of five to seven lay members responsible to the Minister of Health, is the cornerstone of new recommendations for updating the regulation and education of health professions in Ontario.

The proposal is one of 53 "guiding principles" outlined January 25 by Ontario Health Minister Thomas L. Wells. Based on the report of the Ontario Healing Arts Committee tabled last April 28, they are being used in discussions with the health professions and as a basis for new legislation to be drafted by mid-April.

*Regulatory bodies*

The new Health Disciplines Regulation Board would co-ordinate but would not displace existing professional colleges like the Royal College of Dental Surgeons of Ontario. Unlike the Healing Arts Committee, however, Mr. Wells would place the colleges under the board.

He listed the following major guiding principles:

–The public interest should be basic to the regulation of all health disciplines.

–Self-regulatory procedures within the health disciplines should be preserved as much as possible. But, the role of the public would also be recognized by having a significant number (15 per cent) of lay members appointed to regulatory bodies like the Royal College of Dental Surgeons of Ontario.

–The rights of individuals to use the services of health practitioners of their choice should be respected.

–The Health Disciplines Regulation Board would co-ordinate existing professional colleges and proposed "Divisions" that would regulate related health disciplines, such as dental hygienists. The board would be self-contained and not part of the health department.

–Existing colleges would be essentially self-regulatory, but responsive to the requirements of the board to ensure co-ordination and integration. Divisions covering the other health disciplines would make recommendations to the board and, when approved by the board, implement regulatory matters. No health discipline would regulate another health discipline.

Mr. Wells stressed that the regulatory bodies must be independent of any voluntary association established by any health discipline. "Under no circumstances should a voluntary association be associated in a corporate way, directly or indirectly, with a regulatory body."

He said colleges and divisions would be responsible for regulations and standards of licensure or certification and for disciplining their members. They would also assess the competence of those trained outside Ontario. Certification and licensure would not be contingent on age, sex, nationality or length of residence in Ontario.

*Appeals, enforcement*

One of the functions of the Health Disciplines Regulation Board would be to handle appeals from the public or health practitioners who may be affected by a decision of a college or division. Colleges and divisions would initially handle complaints from the public and health practitioners, but the Board would hear appeals resulting from college and division decisions. Ultimate recourse to the courts would still be available to any citizen.

Although the colleges would continue to be responsible for the standards of practice and disciplining of their respective members, they would be relieved of the responsibility to enforce the prohibition of practice by an unlicensed person. This would be transferred to appropriate crown attorneys.

*Education*

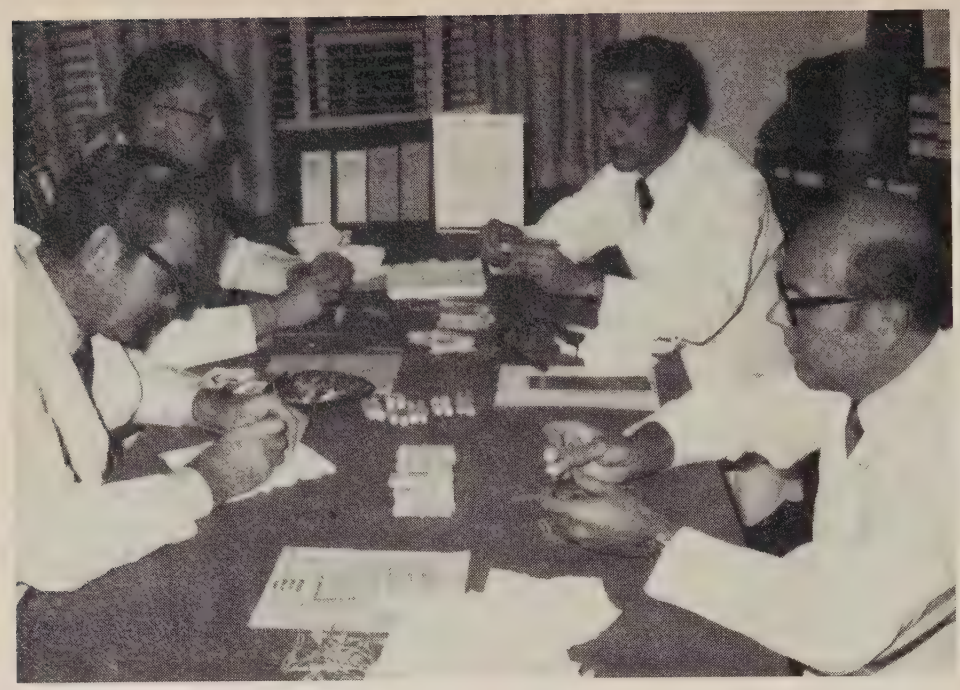
The health minister said education of all health workers should be the responsibility of educational rather than regulatory bodies. Universities would have prime responsibility for university-educated professions. The education of other health disciplines would be the responsibility of other bodies charged with the relevant educational programs under the minister of education.

"Accreditation should become the responsibility of a body that could be representative but should be independent of educational institutions, regulatory bodies or voluntary associations," the minister said.

Graduation from an accredited institution would be the main qualification for licensure. Graduates of equivalent institutions outside Ontario would be allowed to practise without further examination, while those with lesser education would have to upgrade their qualifications before being allowed to practise.

Mr. Wells rejected the immediate introduction of mandatory re-licensing but gave his backing to continuing education programs and refresher courses to help practitioners maintain a high level of competence.

The guidelines also advocate itemized billing to reduce misunderstandings over such matters as the extent of services required, appliances required, and cost of service. But there is no mention about fee schedules or the negotiation of fees.



Chalk carving examiners of the Council on Education's Dental Aptitude Test program held their annual session at CDA headquarters January 18-19. Seen, left to right, are P. M. Jackin, University of Manitoba; W. D. Sanders, McGill University; F. G. Kellam, University of Toronto; and W. R. Teteruck, University of Western Ontario.

## Regional Conventions

### Western hygienists set Calgary meeting in July

Dental hygienists from the four western provinces and the northern United States will hold a meeting in conjunction with the Western Canada Dental Society convention in Calgary July 4-7, it has been announced.

Scheduled speakers include two noted motivation experts: Arthur Alban, Lake Wood, Calif, who will discuss "Dramatic Devices for Patient Education and Motivation," and B. Brahe, Appleton, Wisconsin, whose topic is "The Year of the Trigger."

Accommodation for hygienists will be available at the Calgary Inn or Sheraton Summit. Early reservations are advisable as the convention immediately precedes the world famous Calgary Stampede.

For further information, please write to Mrs. G. Fraser, 903 Sabrina Rd SW, Calgary 13, Alta.

## Research

### Tooth contour affects caries susceptibility

Dental investigators have identified a genetic trait accounting for caries resistance and susceptibility in rats which may explain why certain dietary changes can alter caries incidence.

Thirty years ago, H. R. Hunt and C. A. Hoppert developed one strain of inbred rats susceptible to decay and another resistant to the disease. However, in 1967, American scientists found that altering the animal's diet could mask the "hereditary" patterns.

When microbes that can produce multi-surface decay were present, dietary changes caused the so-called "resistant" rats to develop even more decay than previously "susceptible" animals.

On the basis of careful comparisons, under binocular microscope, of each of five longitudinal grooves of sulci in the lower molars of 24 rats from each strain, Doctors Hunt, Hoppert and Samuel Rosen now report that the contour of the sulci on the occlusal surface of the first and second molars determines the "genetic" pattern.

The sulci in susceptible animals are so shaped that they are far more likely to trap food particles than are comparable grooves in the resistant animals.

Whether or not the food becomes impacted depends largely on the diet's consistency. In the caries-susceptible rat, one sulcus in the mandibular first molar, for example, can trap a rice particle the way a thumb and index finger can grasp a ball, while rice can easily slip out of the comparable groove in the resistant rat.

Thus, when the "susceptible" rat eats a ration of coarse rice particles, rice usually lodges in the transverse fissure, packing finer particles into the bottom of the fissure. There, bacteria can nestle undisturbed and ferment the carbohydrate into decay-causing acids.

### Plaque formation mechanisms studied

Investigators at the Forsyth Dental Centre, Boston, have reported new findings on formation of plaque–through direct adhesion of bacteria to tooth enamel and adhesion in the presence of saliva.

R. J. Gibbons found that saliva causes some of the micro-organisms in human dental plaque to adhere together. Twenty-eight of the 62 types of bacteria cultured from human dental plaque stuck to each other in whole saliva or in fluid obtained from parotid or the submaxillary glands. This adhesion may form the first layer of bacteria on the teeth, setting the stage for bacterial colonies to form and attack the teeth and gingiva.

Another member of the Forsyth team, Johannes Van Houte, reported that 46 of the 62 types of bacteria studied can adhere directly to tooth enamel. One type stuck so strongly within 30 minutes that it could not be washed free or separated by centrifugation.

Gibbons and Van Houte noted large differences in the degree of adhesion among various mouth bacteria. Some bacteria did not adhere to tooth enamel in the test tube, a finding which may explain why some types abound in the mouth but not on the teeth.

Earlier studies showed that some bacteria, such as *Streptococcus mutans*, synthesized dextran as an adhesive to enable them to stick to and attack smooth tooth surfaces. However, most bacteria isolated from human plaque cannot synthesize dextran nor stick together in its presence.

### Effects of sugars on growth of oral streptococci

Investigators at the US National Institute of Dental Research have reported research showing that both plaque-forming and non-plaque-forming oral streptococci grow fast on glucose and fructose, while on sucrose non-plaque-formers also grow rapidly but plaque-formers agglutinate (clump) into slow-growing colonies.

Four strains of oral streptococci were grown under favourable conditions suspended in liquid culture media. Two plaque-forming strains which make dextran and have caused caries in animal experiments were compared with two strains which live in animal mouths but do not form plaque or cause decay.

The investigators found that the simple sugars enabled all four bacterial strains to grow very rapidly with divisions about 30 minutes apart. Sucrose, a more complex sugar, also supported rapid growth of non-plaque-formers, but plaque-formers slowed to about three divisions a day.

Under the microscope, streptococci usually grow in separate chains. How-

ever, only on sucrose do plaque-formers agglutinate and form the sticky insoluble dextran which enables them to cling to smooth surfaces of teeth or glass rods.

Dextranase added to the sucrose medium had no effect on growth of the other strains but speeded the growth of plaque-formers. The enzyme releases them from their clumps by breaking the long dextran molecule into shorter, soluble fragments. Then bacteria can grow freely again while the enzyme supply lasts.

The investigators concluded that the insoluble dextran, synthesized only from sucrose, forms a diffusion barrier around each clump or colony of bacteria. Although the insoluble barrier prevents easy access to food, thus slowing bacterial growth, nevertheless it enables these bacteria to cling to surfaces where other micro-organisms cannot live in competition with them, and prevents saliva from washing them away and diluting their acid waste products.

### Report new fibre-reinforced alloy

Two scientists at the Brooklyn Polytechnic Institute, New York, have produced a new fibre-reinforced aluminium-zinc alloy through a technique requiring only the careful regulation of temperatures.

Alloys with parallel microscopic metal fibres evenly distributed throughout the metal mass are stronger than those without.

If an earlier fibre-reinforced gold-nickel alloy, made two years ago, resists corrosion and tarnish, it could be used in dental splints, orthodontic wires and dentures. Other future alloys, made by the same easy process, could be useful in orthopaedic braces and frames and in many industrial systems.

### Temperature stress may cause enamel cracks

Tooth enamel can suffer "thermal fatigue" when subjected to the constant hot and cold cycling that goes on in the mouth, University of Utah researchers have found. The result, they said, is the appearance of tiny cracks in the enamel surface which possibly could collect food, invite decay, and increase the possibility of fracture.

Working with hundreds of human and cattle teeth, the researchers discovered that enamel is quite strong during thermal compression which occurs when the tooth is heated, as during the intake of a hot drink. But when the tooth surface is subjected to sudden temperature drops, such as in the eating or drinking of something cold, the enamel tends to contract and is more susceptible to cracking.

Tooth materials are relatively poor thermal conductors, the scientists said, because the dentine beneath the enamel surface has not experienced the same temperature changes. In cooling it retains its original dimensions, causing tensile stress on the contracting outer enamel. Cracking results.

One of the worst things a person can do to his teeth, they added, is to chew on ice. Not only are the teeth subjected to thermal stresses, but at the same time they must withstand the physical stresses brought about by crushing hard ice.

Teeth are also subjected to thermal stresses during dental drilling, the researchers reported, and unless this heat is dissipated in some cooling medium, teeth can be weakened around the filling.

Cold water and cold air-water sprays can cause severe temperature cycling during the drilling process, thus weakening the surrounding enamel. On the other hand, a warm water irrigant controlled at body temperature is a good way to eliminate thermal stress during drilling.

According to the research team, teeth with amalgam restorations are more susceptible to thermal stress than sound teeth. These teeth are also weakened because of the extent of cavity preparation required.

## Awards and Appointments

**Murray Cornish** of Toronto is international president of Alpha Omega Dental Fraternity, a world-wide professional association of 15,000 members. The Toronto dentist-educator is chief of oral diagnosis in the Department of Dentistry, New Mount Sinai Hospital. He is also a clinical instructor at the Faculty of Dentistry, University of Toronto, and dental consultant to the medical unit of the Ontario Alcohol and Drug Addiction Research Foundation.

Murray Cornish

K. J. Paynter

Appointed for a three year term to the Medical Research Council of Canada is **K. J. Paynter**, Saskatoon, dean of the College of Dentistry, University of Saskatchewan, and chairman of the CDA Council on Education.

**T. G. White,** a Sault Ste. Marie dentist, was elected chairman of the Ontario School Trustees Council January 30. Doctor White has been a trustee on the Soo Board of Education for 11 years and its chairman for 10. He is a past president of his local dental society and the Northern Ontario Dental Association.

Jacques Dufour

T. G. White

**Jacques DuFour,** Quebec City, was recently appointed as dental consultant to the Quebec Health Insurance Commission.

## Deaths

Batson, Mrs. Lois Adams. 68. Otterville, Ont. University of Toronto, 1926. 6-1-71. Survived by Doctor Harold (husband); Mrs. D. Pettigrew and Mrs. J. Darkes (daughters); Mrs. J. L. Gill (sister); Doctor Cameron Adams and Douglas Adams (brothers); and eight grandchildren. Associate member CDA.

Bleakley, Thomas Wilmot. 72. Vernon, BC. Royal College of Dental Surgeons of Ontario, 1910. 2-12-70.

Gaboury, Lucien. 56. St-Hyacinthe, Qué. Université de Montréal, 1938. 13-9-70.

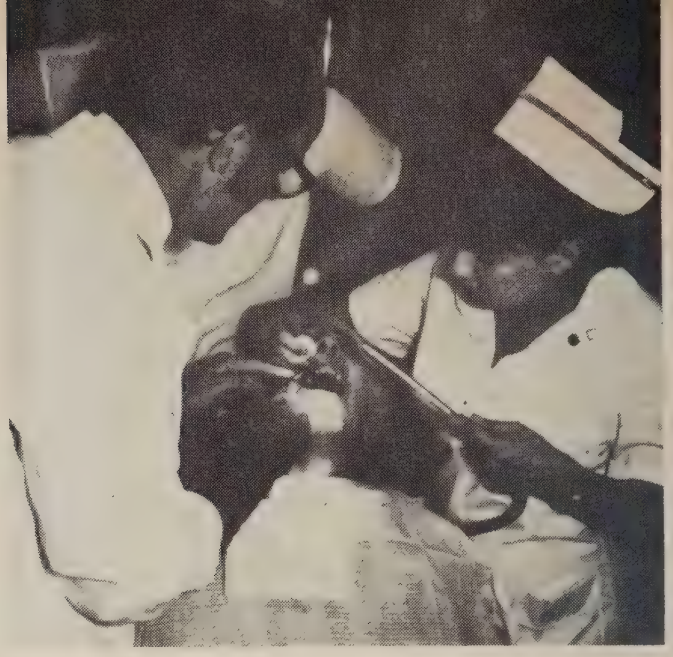
Joly, Paul Emile. 60. Montréal. Université de Montréal, 1934. 24-12-70.

King, James Chisholm. 84. Humboldt, Sask. Royal College of Dental Surgeons of Ontario, 1910. 8-10-70.

Legge, Thomas O'Driscoll. 71. Pembroke, Ont. Formerly of Sudbury, Ont. Royal College of Dental Surgeons of Ontario, 1924. 23-12-70.

Mabee, John Carleton. 69. Gananoque, Ont. Royal College of Dental Surgeons of Ontario, 1924. 19-12-70. Survived by Pearl (wife); Doctor John L. and Doctor Keith W. (sons); and Bruce S. and Edward A. (brothers). Former secretary of Kingston Dental Society.

Martin, Harry Lloyd. 75. Hamilton, Ont. Royal College of Dental Surgeons of Ontario, 1925. 7-1-71. Survived by Albert S. (brother); Mrs. John Smuck (sister); five nephews and four nieces.



Doctor D. C. Tesky (left), one of the clinic's supervising dentists, and Miss Nora Coyle, a volunteer dental assistant from the University of Toronto's Faculty of Dentistry, examine a patient who has just been treated by a student.

## The Toronto students' community dental clinic

Cold, impersonal health clinics so often mirrored by movie makers could be a thing of the past, if more centres followed the example set by Toronto dental students.

Some of the most popular movies from Britain show free health clinics in low-income areas as dismal, assembly-line operations. The physicians and dentists portrayed are generally automatons who handle their patients with little more understanding than an auto mechanic changing spark-plugs.

The dedicated practitioner reflected in these movies is the rare contradiction who becomes the hero of the story. The feelings and work undertaken by dental students across Canada tell a different story.

"There is little argument that the distribution of health service in Canada is far from satisfactory," says Nelson Ravka, a dental student at the University of Toronto.

Ravka is one of a group which is running the school's dental clinic in a low-income area of Toronto.

"It has been found that the underserviced segments of our population lack all forms of proper health care. We as students in the various health sciences cannot remain insensitive to this situation."

Does this sound like a dental robot?

"This centre is an attempt at providing a comprehensive, personalized health care system for a segment of the population who have difficulty obtaining acceptable service in the various health disciplines," says Marty Sterling, another student involved with the project.

The dental clinic is part of an overall group including all the health sciences at the university. It's been dubbed SHOUT, Student Health Organization, University of Toronto.

The students blame the educational system in part for the communication gap between practitioners and patients. This clinic and other similar student projects, popping up across Canada, are seen as one answer to bridging the chasm.

The dental students and others in the health field "feel isolated" says Howard Switzman, who also works in the clinic. "We each learn and practise in a vacuum, unaware of one another's abilities and contributions toward the care of our patients. Finally, there is no contact between us as students and the community on the outside of our institutions of learning," he says.

"There is no opportunity to appreciate the problems of the members of the community who are the subject of our professional concern. Indeed, our train-

Impromptu x-ray developing equipment had to be set up in a bathtub due to lack of space elsewhere in the building.

Student volunteer John Boersma, treating a patient, uses one of the clinic's more modern dental units.

ing is such that we tend to think only about an area of pathology instead of a total individual presenting his problems," adds Switzman.

The clinic has been set up within a specific low-income neighbourhood, Alexandra Park, to be "the personal source of health care" for the residents. The students look to it as the possible alternative to a relatively few hospitals dispensing impersonal service to a large number of patients.

It is the centre's aim to provide "friendly, concerned service," says Dennis Boadway, another member of the student committee. "We try to make the patient's visit as comfortable as possible."

Coffee is served to waiting patients and time is taken with each patient to get across a sense of sympathy and concern. Area residents are encouraged to participate in the running of the centre and the clinic takes an active interest in community affairs.

This helps to reinforce the community's trust in the centre. Aside from their normal health treatments, students volunteer for several community projects such as children's programs, senior citizens' programs, teachers' aides and tutoring.

Basic philosophy behind the activities of the centre is that "health care is a right to all, regardless of a patient's financial status."

The centre charges for medical treatment only if the patient is covered by insurance. Drugs are dispensed free and dental treatment costs $2 per patient—regardless of how much work is required.

The SHOUT dental program began last April. Three chairs are manned by third and fourth year students and supervised by qualified dentists on staff at the university's Faculty of Dentistry. All are volunteers. The dental clinic is open from 6:30 pm to 9:30 pm, Monday through Thursday.

The hours suit both the students and the residents. There is no need for working persons to take time off their jobs for treatment.

Patients are accepted for regular treatment from the Alexandra Park complex, a subsidized project of the Ontario Housing Corporation and the neighbourhood public school. Emergency treatment, however, is given to all who need it.

The guidelines ensure that those receiving treatment are not able to afford service elsewhere.

Dental treatment includes anterior restorations, posterior amalgam restorations, extractions, fluoride applications and prophylaxis, oral hygiene instruction, scaling, limited root canal therapy and denture repairs.

The students themselves gain satisfaction in carrying out an important public service and benefit from contact with all kinds of patients under real conditions.

A wide range of medical conditions is encountered by the students, because patients aren't screened as they are in school. Conditions include pregnancies, drug dependencies and even a case of Hodgkin's disease.

These cases are handled with relative ease, thanks to the broad knowledge of the health teams available at SHOUT. The variations in the cases also make for greater interest and learning impact.

The state of neglect among patients at the centre is greater than that seen at the faculty. Students treat broken down dentitions, which often necessitate complex restorations and multiple extractions.

The student's exposure to community needs allows him to cultivate concern about the problems of the dental profession and its need to improve distribution of services. A lecture course could not have the same impact on the students, says Danny Semenuk who kept the clinic going through the last summer.

"The dental neglect found among the patients treated at the centre emphasizes the need for a generalized preventive program, especially among the children," he says.

The SHOUT program instills a feeling of responsibility both to the patient and society.

The program has always been hamstrung by a chronic shortage of funds for supplies and equipment, although the future seems somewhat brighter, says Ravka.

Several dental companies have been supplying the clinic with needed materials and money is slowly becoming available from various sources. The dental students hope to replace most of the antiquated and broken-down equipment gradually. Two of the three units are older than most of the students, adds Ravka.

# Dental development of the French Canadian child

**Aldona A. M. Sapoka, DDS**
**Arto Demirjian, DDS, MScD**
**Montreal**

*The pattern of permanent tooth formation and the effects of the absence of third molars were studied by serial panoramic radiographs to establish norms of dental development for French Canadian children in Montreal. Preliminary norms of dental development and developmental differences between boys and girls were established. These show that dental formation is slower in the French Canadian child than in the Fels or Michigan child, but corresponds closely to that of the Lucknow, India, child. The absence of third molars is related to a deceleration in the formation of other teeth as well as increased incidence of agenesis of other teeth. This project is part of the first mixed longitudinal study on growth and development of the French Canadian child residing in Montreal.*

*A l'aide de radiographies panoramiques en série, les auteurs ont étudié la formation de la dentition permanente et les effets de l'absence des troisièmes molaires afin d'en dégager des normes du développement dentaire des enfants canadiens-français de Montréal. Ils ont établi des normes préliminaires de développement dentaire et les différences de développement entre garçons et filles. Ces normes indiquent que la formation dentaire est plus lente chez l'enfant canadien-français que chez celui de Fels ou du Michigan, mais qu'elle correspond étroitement à celle de l'enfant de Lucknow en Inde. L'absence de troisièmes molaires est liée à un ralentissement de la formation des autres dents ainsi qu'à une incidence plus forte d'agénésie des autres dents. Ce projet fait partie de la première étude longitudinale mixte sur la croissance et le développement de l'enfant canadien-français résidant à Montréal.*

This article describes the preliminary results of a radiographic analysis of dental development in French Canadian children. It reports the effect of absent third molars on the formation of other teeth. The project forms part of the first mixed longitudinal study on growth and development of the French Canadian child residing in Montreal.

During the complex and dynamic process of growth, the systems in a child's body pass through a series of multiple changes, eventually arriving at a mature state. Dental development is one of these systems.

Growth rates vary in different populations because of dissimilar genetic and environmental factors.[1-5] Ideally, there should be norms for each population.

Dental development is associated with the rate at which general maturation occurs. It too shows great variability among populations. Therefore chronological age is not a very precise method of judging maturity. To establish whether a child is advanced or retarded for his age, his physiological age must be known. Usually, skeletal age is used as an estimate of physiological age, but dental age may also be used.[6]

Dental age may be assessed on the basis of the number of teeth present in the oral cavity or by radiographic analysis of tooth formation. Dental formation is superior to eruption as a method of dental age assessment. Eruption is only a brief occurrence, whereas formation may be rated at different chronological age levels, thereby providing a precise index for determining dental age.

Since our population had not been investigated previously, we set out to establish sex-specific norms for the formation of all of the permanent maxillary and mandibular teeth.

## Review of literature

The evaluation of dental age via "eruption" presents many discrepancies because researchers used different definitions of "eruption," ranging all the way from the first piercing of the gingiva to complete functional alignment in occlusion.[7-12]

Radiography provides a standardized technique for evaluating tooth formation. Though many investiga-

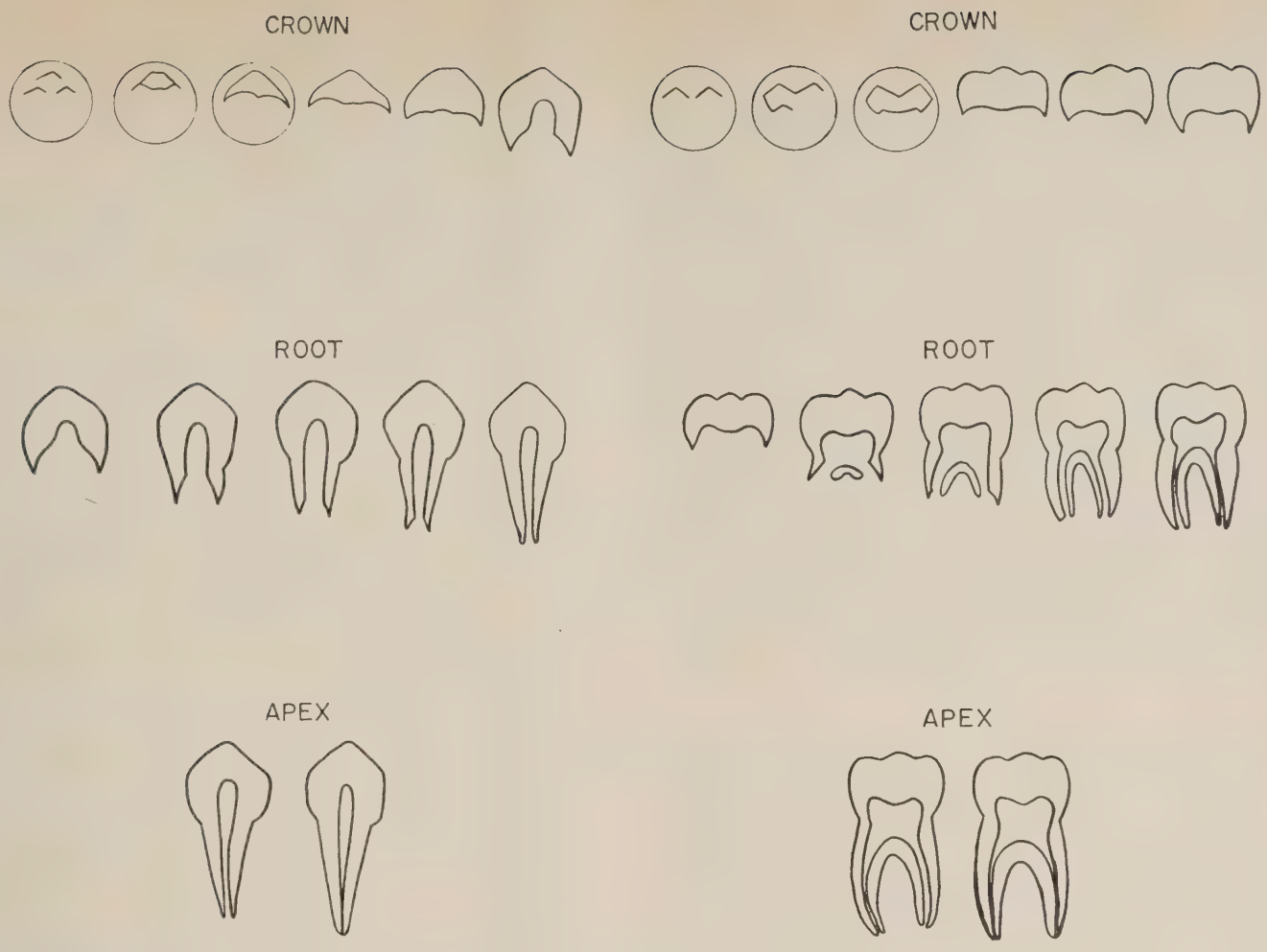



Fig 1 Stages of tooth formation for assessing the development of permanent single-rooted and multi-rooted teeth. (1) Initial cusp calcification. (2) Coalescence of cusps. (3) Cusp outline complete. (4) Crown half complete. (5) Crown three-quarters complete. (6) Crown complete. (7) Initial root formation. (8) Root one-quarter formed. (9) Root half formed. (10) Root three-quarters formed. (11) Root complete, apex open. (12) Apex half closed. (13) Apex completely closed.

tors[13-19] have contributed to the progress of research in dental development, their respective norms are not totally comparable; therefore it is desirable to have norms for each population.

Garn et al[20, 21] have reported that when third molars are missing, the calcification of posterior teeth is delayed and other teeth tend to be more frequently absent. We wanted to see if this relationship is true in our population and to study the effect of absence of the third molars on the formation of anterior teeth.

To see if socio-economic conditions play a role in dental formation, our children were divided into three social classes according to the education, occupation and income of their parents. Twenty-two per cent fell into class 1, 46 per cent into class 2 and 32 per cent into class 3.

Dental maturation of the permanent teeth was determined by inspecting and rating the radiographs from 1 to 13 according to arbitrarily selected developmental stages. These stages were adapted with a slight modification from those used by Moorrees, Fan-

## Materials and methods

The materials consisted of serial panoramic (Panorex) radiographs of French Canadian children attending the Montreal Growth Centre. The films were taken annually at the birth date, plus or minus two weeks. The number of children studied to date in each age group is shown in Table 1. A total of 829 radiographs have been examined so far.

**Sample size** **Table 1**

| Chronological age | Boys | Girls |
|---|---|---|
| 6 | 106 | 100 |
| 7 | 115 | 94 |
| 10 | 108 | 113 |
| 11 | 99 | 94 |

ning and Hunt.[17] Figure 1 illustrates the stages used for the assessment of formation.

To determine the reproducibility and accuracy of the evaluations, 60 panoramic films — 15 of each age group — were randomly selected and re-evaluated four months later by the same examiner. Disagreement between the two observations occurred in only 10 per cent of the determinations in the mandibular teeth, and 13.3 per cent in the maxillary teeth. The differences that did occur never exceeded one stage.

To estimate the amount of distortion produced by the x-ray machine, we selected 50 individuals with various facial breadths and taped four 10mm lead slugs in various positions on the face at the incisal levels of the teeth. We found that by adhering to the proper operating technique the distortion on the right side was minimal; on the left side there was an enlargement of 3-10 per cent, depending on the exact position of the slug and the form of the face. Since radiographic distortion was locally and individually dependent, we established a mean correction factor.

## Results

Mean stages of formation for each tooth were determined for boys and girls in the four age groups. Left and right sides of the maxilla and mandible were evaluated. Since there was no significant difference in formation between the two sides, they were combined in the calculation of the results. We did not find a difference in the rate of formation between the three social classes; therefore they were also combined.

The mean stages of dental formation of Montreal children were compared to those of Fels,[17] Michigan[15] and Lucknow (India) children.[18] The Montreal child's dental formation was slower than that of the Michigan or Fels child. Figures 2 and 3 illustrate just how much the Montreal boys and girls at ages six and 10 years are behind the Fels sample in the formation of all mandibular teeth. This retardation is most pronounced in cuspids, bicuspids and second molars. The mean stages of formation of these teeth are attained by the Fels boys one and a half years earlier and by the Fels girls roughly two years earlier. The development of the incisors and first permanent molars is almost identical in the two samples.

Our children were very similar to the Lucknow children reported by Nanda and Chawla.[18] The Montreal data were ahead in the development of the incisors and first permanent molars, and approximately the same for the rest of the teeth.

The rating of formation stages is highly subjective. Thus, to say that the difference between the three aforementioned populations is an exact indication of retardation or advancement would be false. It would be necessary for the different researchers to calibrate their technique of assessment before one could draw any conclusions.

Our findings agree with those of Fanning[16] and Garn et al[22] in that the girls' dental development was more advanced than that of the boys. According to the chi-square test, this sex difference was most marked in maxillary and mandibular cuspids and mandibular bicuspids (Table 2). This phenomenon was chiefly due to a group of boys who were consistently behind all of the girls and the rest of the boys in dental maturation.

Premature loss of primary teeth was rather high in our population. At six years of age, 29.25 per cent of the boys and 35 per cent of girls had suffered premature loss; by age seven, this number increased to 48.7 per cent in the boys and 52.13 per cent in the

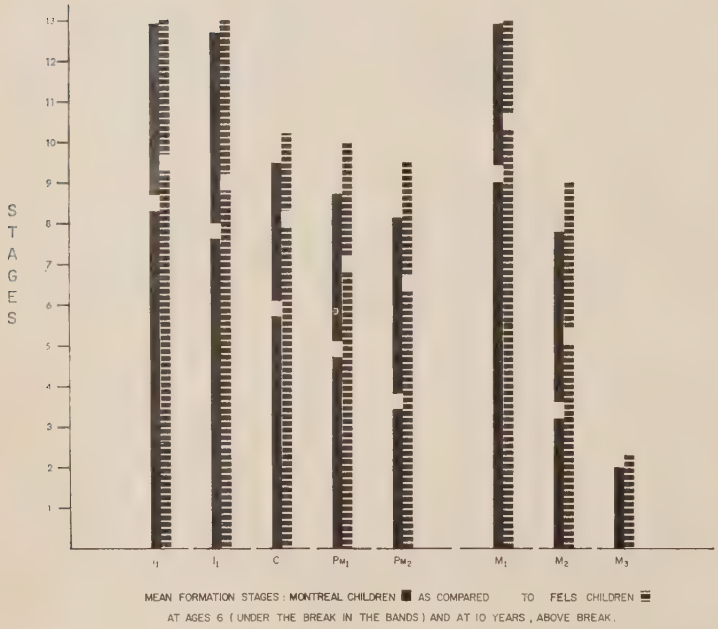



Fig 2 Mean formation stages of Montreal boys compared to Fels boys.

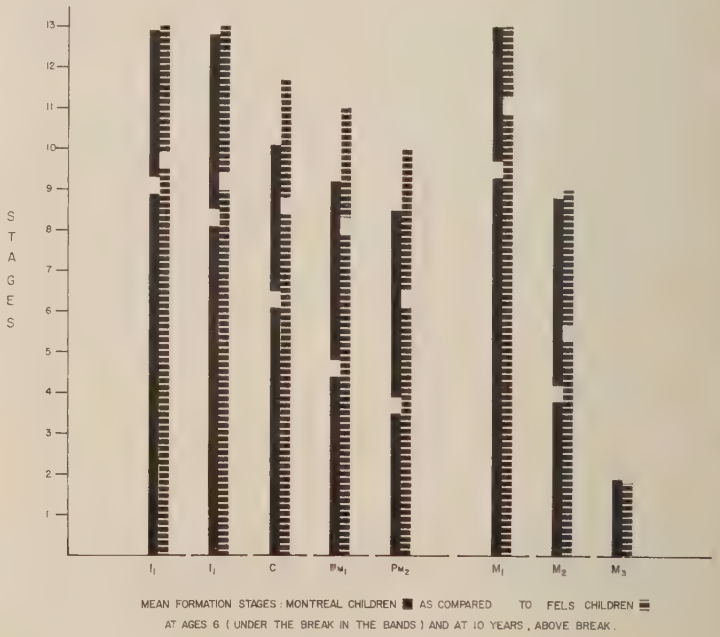



Fig 3 Mean formation stages of Montreal girls compared to Fels girls.

**Comparison of the mean stages of formation between boys and girls** **Table 2**

| Tooth | Chronological age | | Mean formation stage | Difference between boys and girls | Level of significance as tested by $\chi^2$ |
|---|---|---|---|---|---|
| Maxillary cuspid | 6 | M | 5.73 | | |
| | | F | 6.20 | 0.47 | $P < 0.001$ |
| | 7 | M | 6.48 | | |
| | | F | 7.05 | 0.57 | $P < 0.001$ |
| | 10 | M | 9.23 | | |
| | | F | 9.74 | 0.51 | $P < 0.001$ |
| | 11 | M | 9.91 | | |
| | | F | 10.48 | 0.57 | $P < 0.001$ |
| Mandibular cuspid | 6 | M | 5.72 | | |
| | | F | 6.17 | 0.45 | $P < 0.001$ |
| | 7 | M | 6.50 | | |
| | | F | 7.35 | 0.85 | $P < 0.001$ |
| | 10 | M | 9.46 | | |
| | | F | 10.30 | 0.84 | $P < 0.001$ |
| | 11 | M | 10.13 | | |
| | | F | 11.47 | 1.34 | $P < 0.001$ |
| Mandibular first bicuspid | 6 | M | 4.38 | | |
| | | F | 4.75 | 0.37 | $P < 0.01$ |
| | 7 | M | 5.43 | | |
| | | F | 5.97 | 0.54 | $P < 0.001$ |
| | 10 | M | 8.73 | | |
| | | F | 9.24 | 0.51 | $P < 0.001$ |
| | 11 | M | 9.97 | | |
| | | F | 10.37 | 0.40 | $P < 0.01$ |
| Mandibular second bicuspid | 6 | M | 3.49 | | |
| | | F | 3.80 | 0.31 | $P < 0.01$ |
| | 7 | M | 4.33 | | |
| | | F | 4.51 | 0.18 | $P < 0.10$ |
| | 10 | M | 8.09 | | |
| | | F | 8.46 | 0.37 | $P < 0.01$ |
| | 11 | M | 9.35 | | |
| | | F | 9.61 | 0.26 | $P < 0.05$ |

girls. A comparison of premature primary tooth loss between the three social classes showed that class 3 children had a higher rate of loss. This difference was statistically significant when tested by the chi-square test at the $P<0.01$ level for boys and at the $P<0.05$ level for girls.

We compared the rate of dental formation between children who had lost one or more primary cuspids or molars at six and seven years and those who had no premature loss. We found, as did Fanning,[23] that premature loss of these teeth does not affect the rate of formation of permanent teeth.

**Percentage of missing molars in the 11 year old population** **Table 3**

| Jaw | Boys (N = 99) % | Girls (N = 94) % | Total population (Boys and girls combined) % |
|---|---|---|---|
| Maxilla | 27.27 | 22.34 | 24.81 |
| Mandible | 25.25 | 25.01 | 25.13 |
| Maxilla and mandible | 26.26 | 23.68 | 24.97 |

To test the relationship between third molar absence and the rate of formation of other teeth our sample was divided into two groups. The first included all children who lacked one or more third molars; the second contained children who possessed all four third molars, as confirmed by radiographs. Table 3 shows that, at age 11, the mandibular third molar was more often missing than its maxillary counterpart. In the mandible, the total frequency of absence was 25.13 per cent, and in the maxilla 24.81 per cent.

Our data and those of Garn et al[20, 21, 24] agree with respect to jaws but differ with respect to sex. At age 11, Montreal boys had a higher proportion of missing third molars — 26.26 per cent versus 23.68 per cent. Of course this difference could be due to the later maturation of males. When our sample is a few years older we will be able to study these percentages further.

The rate of dental formation appears to be affected by the absence of third molars. Like Garn et al,[21, 24] we found that the rate of dental maturation of boys and girls with absent third molars was consistently slower than in those who had their third molars. In the

**Relationship between third molar absence and retardation in dental formation for 11 year old boys and girls** **Table 4**

| | N with $M_3$ | N without $M_3$ | Formation stage with | Formation stage without | Difference | Level of significance ($\chi^2$) |
|---|---|---|---|---|---|---|
| | | | Boys | | | |
| Maxilla | | | | | | |
| Right $Bc_1$ | 71 | 28 | 9.70 | 9.10 | 0.60 | $P < 0.02$ |
| Left $Bc_1$ | 73 | 26 | 9.50 | 8.86 | 0.64 | $P < 0.05$ |
| Right $Bc_2$ | 71 | 28 | 9.37 | 8.71 | 0.66 | $P < 0.01$ |
| Left $Bc_2$ | 73 | 26 | 9.28 | 8.50 | 0.78 | $P < 0.02$ |
| Right $M_2$ | 71 | 28 | 8.53 | 7.85 | 0.68 | $P < 0.02$ |
| Left $M_2$ | 73 | 26 | 8.63 | 7.78 | 0.85 | $P < 0.02$ |
| Mandible | | | | | | |
| Right $Bc_1$ | 73 | 26 | 10.19 | 9.73 | 0.46 | $P < 0.02$ |
| Left $Bc_1$ | 75 | 24 | 9.96 | 9.70 | 0.26 | $P < 0.20$ |
| Right $Bc_2$ | 73 | 26 | 9.68 | 8.96 | 0.72 | $P < 0.001$ |
| Left $Bc_2$ | 75 | 24 | 9.28 | 8.96 | 0.32 | $P < 0.20$ |
| Right $M_2$ | 73 | 26 | 9.11 | 8.00 | 1.11 | $P < 0.001$ |
| Left $M_2$ | 75 | 24 | 8.96 | 8.29 | 0.67 | $P < 0.01$ |
| | | | Girls | | | |
| Maxilla | | | | | | |
| Right $Bc_1$ | 72 | 22 | 9.93 | 9.21 | 0.72 | $P < 0.01$ |
| Left $Bc_1$ | 74 | 20 | 9.67 | 9.40 | 0.27 | $P < 0.20$ |
| Right $Bc_2$ | 72 | 22 | 9.63 | 8.63 | 1.00 | $P < 0.001$ |
| Left $Bc_2$ | 74 | 20 | 9.47 | 9.00 | 0.47 | $P < 0.001$ |
| Right $M_2$ | 72 | 22 | 8.81 | 7.95 | 0.86 | $P < 0.02$ |
| Left $M_2$ | 74 | 20 | 8.80 | 8.00 | 0.80 | $P < 0.01$ |
| Mandible | | | | | | |
| Right $Bc_1$ | 72 | 22 | 10.52 | 9.68 | 0.84 | $P < 0.01$ |
| Left $Bc_1$ | 69 | 25 | 10.62 | 9.88 | 0.74 | $P < 0.02$ |
| Right $Bc_2$ | 72 | 22 | 9.93 | 9.05 | 0.88 | $P < 0.001$ |
| Left $Bc_2$ | 69 | 25 | 9.71 | 8.96 | 0.75 | $P < 0.05$ |
| Right $M_2$ | 72 | 22 | 9.57 | 8.32 | 1.25 | $P < 0.001$ |
| Left $M_2$ | 69 | 25 | 9.49 | 8.16 | 1.33 | $P < 0.001$ |

anterior teeth this delay was very slight. For boys' and girls' incisors the delay was about one-tenth to one-fifth of a stage, and for cuspids the delay was about three-tenths to two-fifths of a stage. This difference was not significant, but the difference in formation between the "haves" and the "have nots" proved statistically significant in bicuspids and second molars, especially in the mandible. The acceleration in dental formation of the "haves" is illustrated in Table 4.

Not only were other teeth delayed in their formation when third molars were absent, but they were more frequently absent themselves. In our sample, the incidence of other missing teeth in conjunction with missing third molars was 12.45 per cent; but when third molars were present the absence of other teeth dropped to 5.23 per cent.

## Summary


Our preliminary results indicate that:

1. There is a need for sex-specific norms for dental formation in different populations.

2. The Montreal French Canadian child has a slower dental formation than the Fels or Michigan child, but compares closely to the Lucknow child.

3. The absence of third molars is related to a decelerated formation of other teeth and an increased incidence of agenesis of other teeth.


To consummate this project we will have to wait until we have the complete age range. We will then be able to establish norms for the formation of all permanent teeth, derive velocity curves, and correlate eruption with formation.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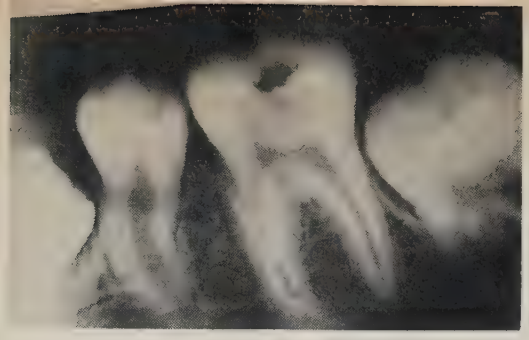

Fig 1 Radiograph showing almost imperceptible evidence of a third root in a lower first permanent molar.

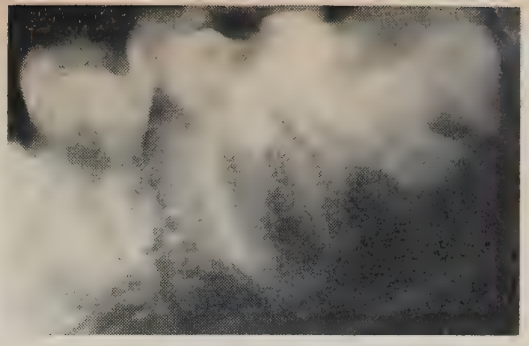

Fig 2 The lingual root is brought into view when the central radiographic beam is shifted five degrees laterally.

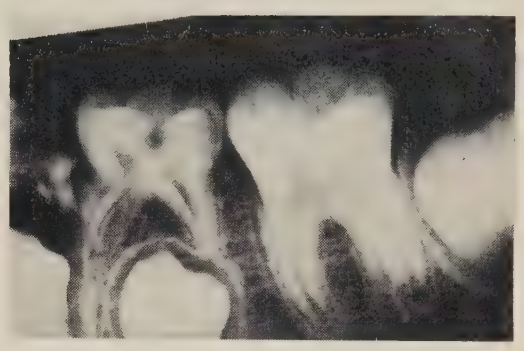

Fig 3 The development of all three roots coincides except for a possible slight delay in calcification of the lingual root.

# Three-rooted mandibular first permanent molars in Alberta Indian children

**W. Somogyi-Csizmazia, MD, DDS, Calgary**
**A. J. Simons, DDS, Edmonton**

*Three-rooted lower first permanent molars were observed in 16 per cent of 250 Alberta Indian children subjected to radiographic examination. Since no allowance was made for teeth actually missing at the time of examination, the authors suggest that the actual incidence may be as high as 25 per cent. Three-rooted lower first permanent molars are also commoner in Asiatic populations. Clinically, these findings reinforce the need for radiographic examination before treating native Indians or patients of Asiatic origin.*

*L'examen radiographique de 250 enfants indiens de l'Alberta a révélé chez 16 p.c. d'entre eux des premières molaires inférieures permanentes à trois racines. Comme les auteurs n'ont pas tenu compte des dents absentes au moment de l'examen, ceux-ci estiment que l'incidence réelle pourrait atteindre 25 p.c. Les premières molaires inférieures permanentes à trois racines sont également plus fréquentes dans les populations asiatiques. Du point de vue clinique, ces observations confirment le besoin d'un examen radiographique avant de traiter les patients d'origine amérindienne ou asiatique.*

Most anatomical texts describe human lower first permanent molars as having two roots. A third root, the so-called "radicula entomaris," is mentioned as a rare phenomenon or as an occasional abnormality.[1] However, in Chinese and closely related populations, like Malays, three-rooted lower first permanent molars are sufficiently common to be considered a normal anatomical variation. Curzon and Curzon[2] have also reported this phenomenon in the Keewatin Eskimo. The suggestion of an Asiatic origin for the Indians of western Canada led us to examine selected tribes for the incidence of these teeth.

## Materials and methods

We conducted our study during the past three years among Alberta Indian children of the Stoney, Cree, Peigan, Blood and Laverne tribes.

A radiographic survey was undertaken since there is no way of judging from a clinical examination whether or not a tooth is three-rooted. Subjects were seated upright with the head positioned so that the body of the mandible was parallel to the floor. Using Kodak periapical ultra-speed film, we made multiple exposures by varying the beam horizontally and vertically to offset any possible masking by the mesial and distal roots.

A total of 250 individuals in the age group 8-17 years were examined in this way.

## Results

Figure 1 shows an almost imperceptible sign of a third root on a lower first molar. By adjusting the beam horizontally this root was made evident as seen in Figure 2.

Figure 3 shows that the development of the lingual root coincides approximately with that of the mesial and distal roots.

Lower first primary molars (Fig 4) and lower first permanent molars (Fig 5) which were extracted for advanced caries clearly demonstrate the characteristics of the lingual root.

Ground sections prepared from extracted specimens revealed a normal morphology for the third root with a clearly demarcated pulp chamber (Fig 6).

The incidence of three-rooted first molars (Table 1) was 16 per cent. This figure may be low because it makes no allowance for first molars already missing (Table 2) at the time of examination.

Fig 4 Lower first primary molar with three roots.

Fig 5 Extracted lower first permanent molars with three roots.

Among male children, 6.4 per cent had bilateral three-rooted molars, compared to the female group where 3.2 per cent had bilateral manifestations.

## Discussion

Inquiries directed to several Asian countries were only answered by the Japanese Dental Association which estimates that 20 per cent of the Japanese population has three-rooted lower first permanent molars. Although we found an incidence of 16 per cent in our random sample of Alberta Indian children and adolescents, we suspect that the actual incidence in these people may be as high as 25 per cent.

We regard the lingual root of these teeth as a genetic trait rather than a developmental anomaly. This belief is strengthened by the occasional observation of double mesial roots besides the third lingual root (Fig 7), a phenomenon which may reflect the penetrance of this genetic trait.

Clinically, these findings reinforce the need for comprehensive radiographic examination before rendering dental treatment to native Indians or patients of Asiatic origin. In these subjects, the chances of encountering three-rooted lower first permanent molars are as high as one in four, or even one in three.

The detection of these teeth permits the dentist to make appropriate decisions with respect to treatment.

**Incidence of three-rooted mandibular first permanent molars in 250 Alberta Indian children aged 8-17** **Table 1**

| Sex | Children examined | Three-rooted mandibular first permanent molars | | |
|---|---|---|---|---|
| | | Right | Left | Bilateral |
| Male | 120 | 5 | 6 | 15 |
| Female | 130 | 3 | 2 | 8 |

**Incidence of missing mandibular first permanent molars in 250 Alberta Indian children aged 8-17** **Table 2**

| Sex | Children examined | Missing mandibular first permanent molars | |
|---|---|---|---|
| | | Right | Left |
| Male | 120 | 19 | 22 |
| Female | 130 | 43 | 44 |

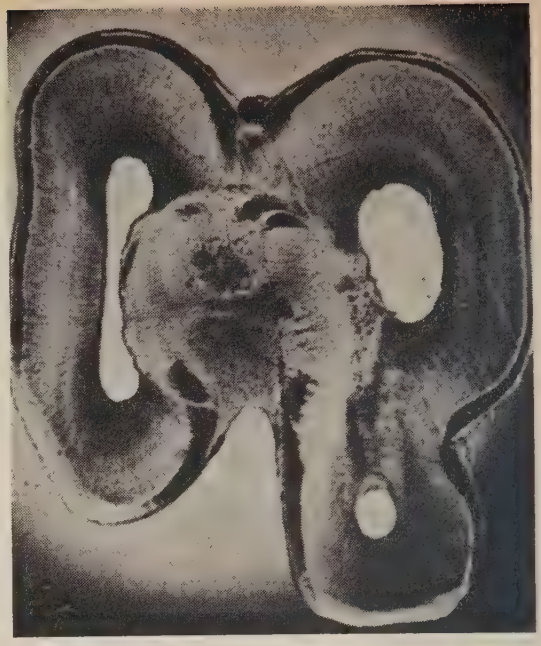

Fig 6 Ground section of a three-rooted molar reveals similar morphological features in all three roots.

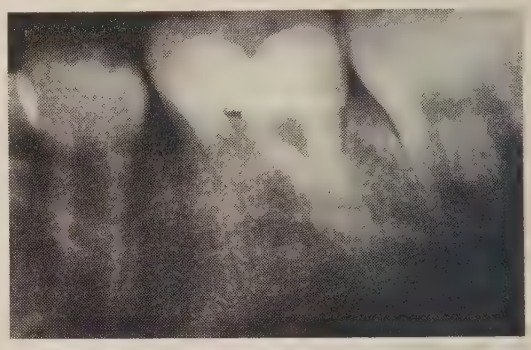

Fig 7 Radiograph showing a lower first permanent molar with a double mesial root and a third lingual root.

## Conclusions

Radiographic examination of 250 Alberta Indian children revealed that 16 per cent had three-rooted lower first permanent molars. Among boys, 6.4 per cent had bilateral three-rooted teeth; among girls, 3.2 per cent had bilateral findings. These figures, which approximate those of Pedersen,[3] support his contention that dental characteristics, among the stablest in man, resist evolutionary change. Furthermore, we regard the third root a sex-linked, dominant characteristic with high penetrance and expressivity.

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1 Lenhossék, Mihály. Az Ember Anatomiája (Anatomy of the human body). Ed 8. Budapest, Tudományos Könyv kiadó, 1923.

2 Curzon, M. E. J. and Curzon, Jennifer, A. Three-rooted molars in the Keewatin Eskimo. J Canad Dent Ass 37:71, 1971.

3 Pedersen, P. O. East Greenland Eskimo dentition. Copenhagen, Bianco Lunos, 1949.

Fig 1 La gencive saine est rose, alors que la muqueuse orale mobile est rouge vif. Le rebord marginal de la gencive est parallèle à la jonction émail-cément de telle manière que la gencive interdentaire se trouve située du côté coronaire par rapport à cette jonction. La surface est grenue comme la pelure d'une orange. La gencive est ferme et solidement adaptée autour du collet. La profondeur du sillon gingivo-dentaire est de deux à trois millimètres lorsque la dent a terminé son éruption.

# Le traitement et la prévention de la gingivite

**Jörgen Thellade, DDS, BScD, MS**
**Aarhus, Danemark**

*La plaque dentaire est la cause initiale de l'inflammation de la gencive. Tout traitement de la gingivite doit donc inclure l'élimination des plaques et prévenir sa nouvelle formation. Il faut enseigner au patient les principes d'hygiène buccale et s'assurer de son engagement sur le plan psychologique. En plus, la conformation anatomique de la gencive doit favoriser les mesures d'hygiène. Il est entendu que le tartre et les restaurations défectueuses doivent être complètement éliminés.*

*Gingival inflammation is caused by bacterial plaque adhering to the teeth along the gingival margin. The inflammation subsides within approximately one week after the plaque is removed. Treatment therefore consists of removal of the soft and calcified plaque material and the elimination of all sites, like ill fitting restorations, where such material may adhere. The plaque-free state must be preserved after the patient leaves the dentist so as to avoid recurrence of gingivitis. The only practical way to prevent the formation of new plaque is by teaching patients adequate home care. They must be intensely motivated if oral hygiene is to be maintained for any length of time. A healthy gingiva requires (1) sufficient oral hygiene to prevent the formation of new bacterial plaque and dental calculus, (2) gingival contours that permit efficient oral hygiene, and (3) elimination of all plaque retention sites.*

L'inflammation gingivale est causée par les plaques dentaires qui adhèrent au niveau du rebord marginal de la gencive. Des études épidémiologiques approfondies ont montré de façon très convaincante cette relation entre la formation de la plaque dentaire et le développement de la gingivite.[1] Sur le plan clinique, on a démontré que l'interruption des mesures d'hygiène dentaire était responsable de l'apparition d'une gingivite en rapport avec le développement des plaques bactériennes chez les sujets qui présentaient auparavant une gencive saine.[2, 3] Lorsque les soins d'hygiène étaient à nouveau prodigués, la gingivite disparaissait en quelques jours. Le traitement logique de la gingivite consiste donc à éliminer les plaques bactériennes du rebord marginal de la gencive.

Cependant un diagnostic correct de l'état de santé de la gencive est nécessaire avant d'instituer un traitement qui, à première vue, paraît simple. C'est la raison pour laquelle l'aspect de la gencive saine et enflammée sera décrit brièvement.

## La gencive saine

La gencive saine est rose, alors que la muqueuse orale mobile est rouge vif (Fig 1). Le rebord marginal de la gencive est parallèle à la jonction émail-cément de telle manière que la gencive interdentaire se trouve située du côté coronaire par rapport à cette jonction. La surface est grenue comme la pelure d'une orange. La gencive est ferme et solidement adaptée autour du collet. La profondeur du sillon gingivo-dentaire est de deux à trois millimètres lorsque la dent a terminé son éruption. Il n'y a pas d'hémorragie lorsque les sillons gingivo-dentaires sont explorés délicatement à l'aide d'une sonde parodontale à extrémité mousse. De même les gencives ne saignent pas lors du brossage

Fig 2 L'aspect clinique de la gingivite diffère de celui de la gencive saine sur les points suivants: la couleur du rebord marginal n'est plus rose mais rouge ou rouge-bleuâtre. La morphologie gingivale est souvent modifiée à cause de la présence d'oedème et pour cette raison, la surface n'est plus grenue mais lisse. La consistance de la gencive est aussi modifiée, elle n'est plus ferme, ni solidement attachee au collet. Le sillon gingivo-dentaire n'est pas plus profond. La gencive inflammée saigne facilement.

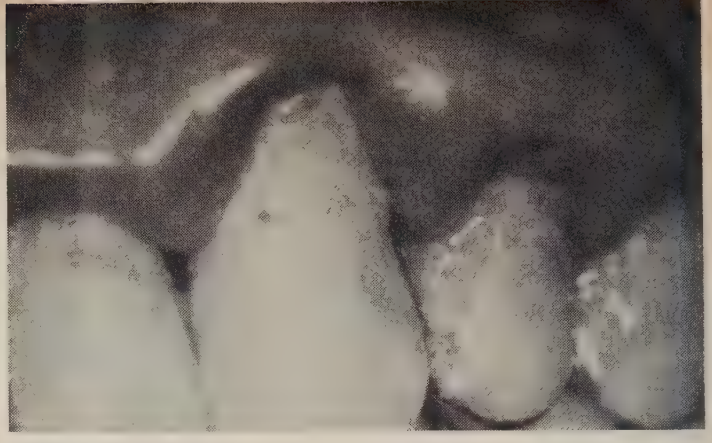

Fig 3 L'accumulation de plaque dentaire.

dentaire. Tel doit être l'objectif à réaliser par le traitement de la gingivite. Lorsque le praticien possède une notion précise de la gencive saine, il est alors capable de diagnostiquer les états qui s'écartent de cette situation idéale.

**La gingivite chronique**

L'aspect clinique de la gingivite diffère de celui de la gencive saine sur les points suivants: la couleur du rebord marginal n'est plus rose mais rouge ou rouge-bleuâtre (Fig 2). La morphologie gingivale est souvent modifiée à cause de la présence d'oedème et pour cette raison, la surface n'est plus grenue mais lisse. La consistance de la gencive est aussi modifiée, elle n'est plus ferme, ni solidement attachée au collet.

Le sillon gingivo-dentaire n'est pas plus profond et par conséquent, les structures qui soutiennent la dent ne sont pas détruites. Si le sillon gingivo-dentaire s'est approfondi, si une poche parodontale s'est formée, le patient présente une parodontite. Il n'y a pas de différence fondamentale entre la gingivite et la parodontite marginale, cette dernière n'est qu'un stade plus avancé de la maladie.

Si le patient présente une gingivite, la gencive saigne facilement, par exemple lors du brossage ou lorsqu'une sonde parodontale est insérée dans le sillon gingivo-dentaire. Au niveau du rebord marginal, on remarque la présence de plaques dentaires (Fig 3).

**Le tartre**

A certains endroits, les plaques dentaires vont se minéraliser, il s'agit alors de tartre. Les plaques supragingivales localisées sur la face linguale des incisives inférieures et la surface vestibulaire des molaires supérieures se calcifient souvent. En ce qui concerne les plaques subgingivales, la tendance à la calcification est plus généralement répartie en bouche. Cependant il existe toujours une mince couche de plaque non calcifiée sur le tartre.[4] C'est la raison pour laquelle la gingivite se développe toujours là où des plaques ou du tartre ont pu se former et réciproquement les plaques sont toujours présentes dans les régions où on a mis en évidence une gingivite. Par contre, le tartre n'a pas besoin de s'être formé là où il y a une gingivite. Cela signifie que le facteur étiologique principal de la gingivite est constitué par l'accumulation de plaques dentaires. Le traitement et la prévention de la gingivite consiste donc à éliminer les plaques dentaires et à empêcher toute nouvelle formation.

*Comment éliminer les plaques et prévenir leur réapparition* — L'élimination des plaques dentaires est assez facile à réaliser par le dentiste, s'il s'agit d'une gingivite simple, parce que dans ce cas le sillon gingivo-dentaire ne s'est pas approfondi. Empêcher que les plaques se reforment est chose plus difficile pour le dentiste car inviter chaque patient à venir s'installer chaque jour dans le fauteuil pour lui enlever ses nouvelles plaques est un procédé très peu pratique. On demande plutôt au patient d'enlever lui-même ses plaques dentaires chaque jour. Si le patient est capable de mener à bien ce travail, les plaques ne peuvent se développer et la gencive est maintenue en bonne santé.

Pour que la bouche du patient soit et reste propre, les conditions suivantes doivent être remplies:

1. Le patient doit être capable d'éliminer toutes les plaques dentaires. Le patient doit connaître les préceptes d'hygiène dentaire. Il doit apprendre à manipuler une brosse à dents et comment procéder pour atteindre les surfaces que la brosse ne peut nettoyer, comme les surfaces proximales par exemple. Dans ce cas, le cure-dent ou la soie dentaire sont nécessaires. Le praticien est responsable de l'éducation du patient et il doit vérifier si le patient se conforme de façon satisfaisante aux instructions données.

2. Cependant, il ne suffit pas que le patient ait acquis l'habileté nécessaire pour enlever convenablement les plaques dentaires car il faut qu'il effectue ce travail tous les jours. Le patient doit être suffisamment "motivé". Il doit connaître pourquoi il doit réaliser un travail quotidien. Il doit savoir ce qui arrive s'il

Fig 4 Même patient qu'à la figure 2. Après une semaine, la gencive est presque saine. On a enlevé le plus de tartre possible lors de la première visite et on a montré au patient comment appliquer correctement les mesures d'hygiène appropriées.

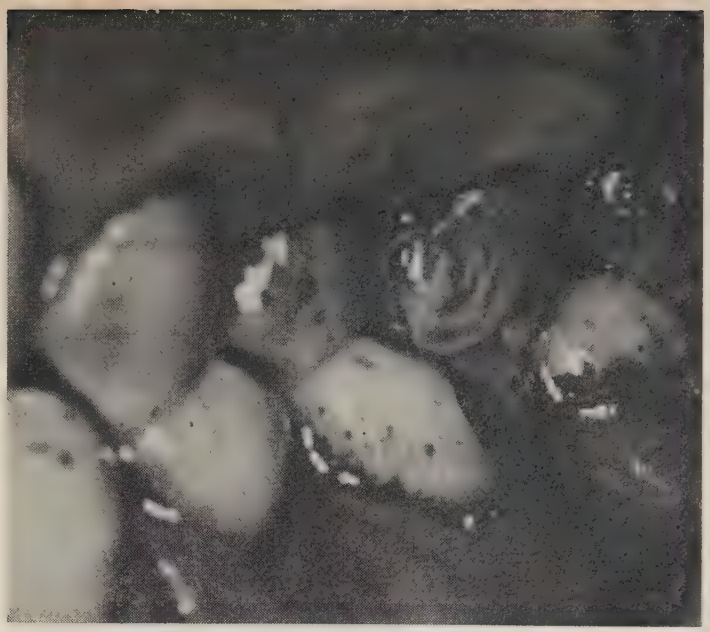

Fig 5 L'accumulation de plaque dentaire est mise en évidence par une solution qui colore les plaques.

le néglige et pourquoi. En outre, il doit comprendre et apprécier les avantages dont il bénéficiera s'il suit les conseils qu'on lui donne.

Ces deux objectifs: une éducation suffisante dans le domaine des soins à prodiguer à domicile d'une part, et une motivation adéquate d'autre part, sont les bases du traitement correct et de la prévention de la gingivite. Le dentiste n'est pas très qualifié pour accomplir ces deux objectifs. Traditionnellement nous avons l'habitude de juger notre travail personnel par la qualité immédiate d'une reconstruction réalisée grâce à notre habileté manuelle. Dans le cas d'une gingivite, le succès du traitement dépend essentiellement de nos capacités d'enseignement. Nous devons enseigner à nos patients l'habileté technique requise pour réaliser le traitement et nous devons expliquer et convaincre le patient qu'il a tout à gagner s'il pratique ces mesures d'hygiène quotidiennement et toute sa vie. Ce que le dentiste doit comprendre, c'est qu'il n'existe pas une nouvelle technique pour traiter la gingivite, mais un abord complètement nouveau du traitement.

## Le traitement de la gingivite

Voici comment est traité un patient qui présente une gingivite lorsqu'il arrive au Département de Parodontologie du Collège Royal Dentaire de Aarhus.[5]

*L'examen et le diagnostic* — Tout d'abord, le patient est soigneusement examiné et un diagnostic précis est posé. Comme les caries sont dépistées surface par surface, l'état de santé de la gencive est déterminé en utilisant l'index gingival[6] qui indique le degré d'inflammation gingivale pour chaque surface dentaire. De même nous évaluons la quantité de plaques dentaires en utilisant un index de plaques.[7] Les poches parodontales de plus de trois millimètres de profondeur sont repérées. De cette façon il est possible d'évaluer ultérieurement et objectivement le résultat du traitement simplement par comparaison avec une nouvelle évaluation de l'état gingival, des plaques et des poches, par la même méthode.

*L'information et la "motivation" du patient* — Lorsque le diagnostic de gingivite chronique est posé, on commence à "motiver" le patient. Dans un miroir, on lui montre les symptômes de l'affection. On lui explique aussi ce qui arrive si la gingivite n'est pas traitée et le bénéfice d'un traitement soigneux. On montre au patient l'accumulation de plaques dentaires (Fig 3) et on lui explique en quoi consiste la plaque dentaire et le rôle qu'elle joue dans la gingivite. Ensuite on lui explique le traitement en attirant son attention sur la coopération dont il doit faire preuve, cette dernière étant une condition indispensable au succès du traitement.

*L'instruction des mesures d'hygiène dentaire* — Ensuite les principes d'hygiène sont enseignés. Il ne faut pas dire au patient que sa bouche est sale, mais qu'avec les conseils qu'on lui donne, l'état de sa bouche sera beaucoup meilleur qu'il ne l'est actuellement. On vérifie ensuite si le patient est capable de manipuler correctement la brosse à dents et le cure-dent.

*L'élimination du tartre* — C'est aussi au cours de cette visite que les plaques dentaires et le plus de tartre possible est enlevé. Le patient n'est pas capable d'enlever le tartre qui joue le rôle de support de rétention pour de nouvelles plaques. De même les obturations "défaillantes" sont corrigées car elles aussi retiennent les plaques dentaires.

On demande au patient d'utiliser la brosse à dents et le cure-dent à son domicile, conformément aux instructions reçues. Des brochures décrivant les parodontolyses en termes simples lui sont données afin qu'il les lise chez lui.

*Evaluation des résultats du traitement* — Après une semaine, le patient est réexaminé. S'il a été capable de pratiquer les mesures d'hygiène correctement, la gencive devrait être presque saine (Fig 4). Par contre, si la gingivite persiste, soit dans toute la bouche, soit à certains endroits, les raisons de cet état de chose doivent être recherchées.

Fig 6 Dans une clinique dentaire d'nne école de 600 élèves située près de Aarhus. Le dentiste a appris à son hygiéniste dentaire à motiver les enfants et à leur enseigner l'hygiène dentaire. Il en résulta une réduction de la fréquence de la gingivite et de la carie parmi ces enfants. (L'auteur remercie le chef de la clinique dentaire de l'Ecole communale de Hasle, Aarhus, le docteur Bent Eriksen, pour cette illustration.).

L'efficacité de la pratique des mesures d'hygiène est facilement jugée en cherchant les plaques dentaires. D'habitude, certaines régions montrent encore une accumulation de plaques. Alors on donne un miroir au patient et il réalise le bien-fondé du traitement. Ensuite on lui montre les zones où les plaques sont toujours présentes. On peut utiliser dans ce but une solution qui colore les plaques (Fig 5). Le praticien invite le patient à nettoyer les dents comme il l'a fait chez lui pendant la semaine, ce qui permet au dentiste de contrôler la technique enseignée. Si le résultat n'est pas satisfaisant, le patient est à nouveau instruit des techniques d'hygiène.

*Facteurs locaux responsables d'une hygiène dentaire insuffisante* — Il peut arriver que certaines régions ne peuvent être nettoyées suffisamment par suite de leur accès par trop difficile. Des obturations défectueuses peuvent empêcher la brosse ou le cure-dent de pénétrer dans les espaces proximaux, d'autre part, la morphologie gingivale peut n'être pas idéale pour permettre un nettoyage facile. A la suite de la guérison d'une gingivite ulcéro-nécrotique, des zones de rétention pour les plaques se sont formées en regard des faces dentaires proximales; de même une gingivite hyperplasique entraîne la formation de zones de rétention des plaques. Dans de tels cas, la morphologie gingivale doit être corrigée chirurgicalement par une gingivoplastie.

Le tartre, surtout le tartre subgingival peut retenir de nouvelles plaques qui ne peuvent être éliminées lorsque le patient nettoie sa denture, c'est pourquoi tout le tartre qui reste en place est enlevé et les zones où la gingivite persiste encore sont inspectées et curettées soigneusement. Enfin toutes les surfaces dentaires, y compris les surfaces proximales sont polies afin d'obtenir des surfaces lisses que le patient sait plus facilement nettoyer chez lui.

*Hygiène dentaire individuelle insuffisante* — Très souvent le traitement échoue parce que le patient n'a pas été suffisamment soigneux, parce qu'il n'a pas été suffisamment instruit des mesures d'hygiène, mais surtout parce qu'il n'a pas été suffisamment convaincu. C'est pourquoi il faut "sermonner" le patient à chaque visite jusqu'à ce qu'il comprenne pleinement le problème et qu'il prenne conscience de la responsabilité qu'il a à assumer dans le traitement.

*Visites de contrôle* — Lorsque la gencive est saine partout, le patient est renvoyé. On lui demande de revenir pour un examen de contrôle après un mois. La visite suivante est fixée à un intervalle de trois mois, ensuite une visite de contrôle semestrielle est d'habitude suffisante.

*Responsabilité du dentiste* — La responsabilité du dentiste dans le traitement de la gingivite consiste donc:

1. A créer des conditions locales favorables à la pratique de l'hygiène individuelle du patient, et
2. A convaincre et à éduquer le patient pour qu'il effectue quotidiennement un nettoyage méticuleux de sa bouche.

**Prévention chimique du développement des plaques et du tartre**

Le traitement n'est pas techniquement difficile pour le dentiste mais il peut prendre beaucoup de temps, aussi bien pour le traitement proprement dit que pour l'éducation et la motivation du patient. En outre le traitement ne réussit pas chez tous les patients. Il y a des patients qui ne possèdent pas la dextérité requise, ils sont peu nombreux; d'autres se montrent réfractaires à toute motivation.

C'est pourquoi il est normal que d'autres méthodes aient été tentées pour enlever les plaques. On a essayé de perturber le développement des plaques et tartre à l'aide de moyens chimiques.[4, 8] Les fabricants de dentifrices, de produits pharmaceutiques et de chewing gum ont compris que l'élaboration et la vente sur le marché d'un agent chimique qui pourrait maintenir aisément la bouche propre serait une opération très lucrative.

*Les antibiotiques* — On a essayé d'empêcher le développement de la plaque avec de nombreux agents antibactériens qui ont été utilisés de façons diverses. La pénicilline a été employée sur des volontaires à Zurich sans succès.[9] A Aarhus on a utilisé d'autres antibiotiques lors d'expériences cliniques:[10] bien que le développement de la plaque soit ralenti, il s'en forme quand même assez pour déclencher une gingi-

vite et ce fut encore un échec. D'ailleurs un traitement par antibiotiques n'est pas indiqué pour d'autres raisons.

*Autres agents antibactériens* — De nombreux autres agents antibactériens non spécifiques ont également fait l'objet d'études quant à leur capacité d'empêcher la formation de la plaque. Un seul fut trouvé très efficace, il s'agit du ricinoléate.[11] Si l'on se rince la bouche trois fois par jour avec ce produit, les plaques ne se forment pas. Mais ce produit a une saveur infecte au point qu'il se mêle aux aliments et même au tabac. En outre il produit des lésions de la muqueuse buccale ce qui l'écarte définitivement de l'arsenal thérapeutique dentaire.

*Les agents qui libèrent de l'oxygène* — Des produits qui libèrent de l'oxygène ont été étudiés: il y en a qui possèdent une action inhibitrice partielle sur la formation des plaques, mais elle est insuffisante pour empêcher la gingivite. Une réduction de 70 p.c. dans la formation des plaques est absolument inefficace car les 30 p.c. restants se trouvent précisement au niveau du rebord marginal, là où la gingivite se développe. En outre plusieurs de ces substances sont toxiques pour la muqueuse buccale.

*Les enzymes actifs sur la substance intermicrobienne de la plaque* — On a beaucoup étudié l'action d'enzymes susceptibles de détruire la substance intermicrobienne de la plaque, substance qui maintient les microbes dans un milieu favorable et qui maintient la plaque au contact de la dent. Des enzymes divers ont été incorporés dans des solutions destinées au rinçage de la bouche, dans des chewing gums, des dentifrices. Si les plaques dentaires se formèrent un peu moins vite, elles furent toujours assez nombreuses pour produire une gingivite et de même que les substances libératrices d'oxygène, ces enzymes ne sont pas inoffensives sur la muqueuse buccale.

Récemment, un nouvel espoir est apparu. On sait actuellement que le dextran constitue une partie importante de la substance intermicrobienne, laquelle maintient les bactéries agglomérées dans la plaque dentaire. Si une préparation pure de dextranase pouvait être utilisée, il existerait une possibilité théorique d'empêcher la formation des plaques. Cet enzyme n'est pas toxique sur les tissus parce que ces derniers ne renferment pas de dextran. Des expériences sur les animaux ont donné des résultats encourageants,[12, 13] les expériences cliniques sur l'homme au moyen de dextranase sont en cours de réalisation, mais les résultats ne sont pas encore connus.

Actuellement, la seule façon pratique d'empêcher la gingivite consiste à faire enlever manuellement les plaques par le patient et cela quotidiennement.

## Les hygiénistes dentaires

Il ressort de ce qui précède que le traitement de la gingivite est efficace et qu'il repose sur des bases scientifiques. Sa valeur a été éprouvée au moyen d'expériences cliniques et en pratique il donne de bons résultats. Nous devons cependant admettre qu'il exige beaucoup de temps à la fois du dentiste et du patient. Etant donné le nombre insuffisant de dentistes dans la plupart des pays, il n'est pas possible de traiter toute la population. L'utilisation de personnel dentaire auxiliaire, les hygiénistes dentaires est nécessaire.

## Action des mesures d'hygiène sur la gencive

En outre, il faut reconnaître que les résultats ne constituent pas un succès à 100 pour cents parce que la motivation des patients n'est pas suffisamment élevée. Notre temps est-il vraiment gaspillé si nous n'arrivons pas à convaincre pleinement le patient? La réponse est négative: à Oslo, Waerhaug et ses collaborateurs éduquèrent 1,500 ouvriers au moyen de brosses à dents et de cure-dents et ils enlevèrent périodiquement le tartre subgingival.[14] Aucun autre traitement ne fut réalisé. Après cinq ans, on évalua l'état de propreté buccale et on s'aperçut que ceux qui présentaient une bouche propre avaient beaucoup moins de gingivite qu'au départ de l'étude clinique. Même les patients que l'on avait considérés comme présentant une hygiène buccale insuffisante, montraient statistiquement moins de gingivite qu'au début de l'étude. En d'autres termes, même les patients qui ne coopèrent pas de façon satisfaisante retirent quand même un bénéfice significatif du traitement.

A Malmö, en Suède, une expérience clinique débuta en 1963 pour évaluer l'effet d'un enseignement d'hygiène dentaire sur le développement de la gingivite parmi les écoliers de neuf à 10 ans.[15] Les élèves brossaient les dents chaque jour à l'école sous le contrôle d'une hygiéniste. Après deux ans (1965) l'état de santé des gencives était beaucoup meilleur que celui du groupe pris comme témoin. Après une année supplémentaire (1966) l'état de la gencive restait bon dans le groupe où les mesures d'hygiène étaient appliquées, tandis qu'il devenait plus mauvais dans le groupe témoin. Alors le contrôle des hygiénistes fut interrompu ce qui eut pour conséquence qu'après une autre année (1967) la gingivite augmenta au point d'atteindre le même niveau que celui du groupe témoin. A ce moment, les deux groupes montraient la même quantité du plaques sur leurs dents.

Les conclusions que l'on peut tirer de cette expérience sont les suivantes: (1) On peut maintenir la gencive des écoliers en bonne santé à l'aide d'un programme d'hygiène dentaire contrôlé quotidiennement; et (2) dès que le contrôle cesse, les plaques s'accumulent à nouveau et il semble que la motivation n'est pas suffisamment forte pour que les soins d'hygiène soient continués pendant un an.

En de nombreux endroits, des recherches sont en cours pour tenter d'améliorer nos méthodes de motivation et pour déterminer la fréquence nécessaire à laquelle un rappel doit être instauré pour maintenir une thérapeutique efficace. Il est possible d'éduquer et de motiver un plus grand nombre de patients en même temps; il est possible de confier une partie de ce travail aux hygiénistes ou à des programmes visuels automatiques dans la salle d'attente.

## Conclusions

Les expériences cliniques d'Oslo et de Malmö montrent de façon précise que le traitement et la prévention de la gingivite améliorent la santé de la gencive.

Le traitement est si simple que tout dentiste bien éduqué est parfaitement qualifié pour l'entreprendre. En Scandinavie, ce traitement est réalisé avec succès par de nombreux dentistes en pratique privée et dans les services dentaires scolaires (Fig 6). Nous possédons une méthode pour traiter et prévenir la gingivite et ce traitement améliorera la santé dentaire de la population. C'est à nous, dentistes, à l'appliquer.


## Résumé

L'inflammation de la gencive est causée par la présence de plaques dentaires qui adhèrent à la surface de la dent le long de la gencive marginale, ce qui a été démontré lors d'études épidémiologiques approfondies comme par l'expérience clinique. Lorsque les plaques bactériennes sont enlevées, les phénomènes inflammatoires régressent après une semaine environ. C'est pourquoi le traitement de la gingivite comporte l'élimination des plaques qu'elles soient molles ou calcifiées (tartre) en même temps que la transformation de toutes les zones susceptibles de retenir les plaques bactériennes comme par exemple les obturations défectueuses.

En outre, si l'on veut prévenir le retour de la gingivite, il faut maintenir la bouche du patient exempte de plaques. Des thérapeutiques variées antibactériennes et chimiques ont été préconisées pour empêcher la formation de la plaque ou pour aider à l'éliminer. Jusqu'à ce jour, de telles thérapeutiques se sont révélées inefficaces en clinique.

Ainsi donc, le seul moyen pratique capable de prévenir la formation des plaques et par là même, le développement de la gingivite, c'est d'enseigner au patient des principes d'hygiène buccale. On a également montré que si des mesures d'hygiène doivent être efficacement mises en pratique chaque jour pendant une période relativement longue, il faut à tout prix créer sur le plan psychologique, un besoin très intense de la part du patient.

Le traitement de la gingivite sera un succès pour autant que: (1) le patient soit capable de mettre en pratique des mesures d'hygiène dentaire suffisantes pour prévenir la formation de nouvelles plaques dentaires et du tartre; (2) la conformation de la gencive soit telle qu'elle ne rende pas inefficace les mesures d'hygiène dentaire; et (3) toutes les zones de rétention des plaques (tartre, obturations défectueuses) soient éliminées. Si la gencive n'est pas redevenue saine après huit jours, une ou plusieurs de ces trois conditions n'ont pu être réalisées.

Des études épidémiologiques ont clairement montré que le traitement de la gingivite pendant plusieurs années tel qu'il est préconisé ici, améliore la santé dentaire de la population.



Communication presentée à Ostende le 17 mai 1969 lors du Congrès Belge de Médicine Dentaire. L'auteur remercie le docteur J. Kohl à l'Institut de Stomatologie de l'Université de Liège pour l'assistance avec la traduction du manuscrit. Publié avec l'autorisation de la *Revue Belge de Médecine Dentaire.*



Le docteur Jörgen Theilade est professeur titulaire et directeur du Département du microscope électronique Collège Royal Dentaire, boul Vennelyst, DK-8000 Aarhus C, Danemark.



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raison suffisante pour réaffirmer nos principes de déontologie.

L'exemple cité ne concerne heureusement qu'une petite minorité de dentistes, mais il fait voir la profession toute entière sous un jour déplaisant — ce qui est particulièrement injuste envers les nombreux praticiens qui se consacrent sans lésiner au service de leurs patients. Cet oubli de soi fait partie des traditions professionnelles, des idéaux et des buts de l'art dentaire. Il devrait faire partie de la philosophie de chaque dentiste.

# A custom rubber dam template

**R. H. Spedding, DDS, MSD**
**T. M. Cooper, DDS**
**Lexington, Kentucky**

This article describes the fabrication and use of a custom rubber dam template. It was written for (1) dentists who use rubber dam isolation for restorative procedures on several teeth in the same segment of the mouth at the same appointment; (2) dentists who estimate the location of the holes to be punched in the rubber dam after looking at the teeth to be isolated; (3) dentists who wish to substitute a more precise template for a commercial template; (4) auxiliaries who can locate and punch the appropriate holes.

## Indications

A custom-made rubber dam template is particularly useful for (1) teeth in poor alignment, (2) generalized or localized spacing between teeth and (3) patients with missing teeth or fixed partial dentures. When several restorative appointments are planned for a patient, the location of the teeth can be marked on several pieces of rubber dam ahead of time and the rubber dams can be kept with the patient's records.

## Preparation

The impressions for a custom template can be made at a preliminary (preventive) sitting and the template can be made before the first restorative appointment.

Wax imprints of the occlusal and incisal surfaces of the upper and lower teeth are recorded on two layers of beeswax separated by a piece of paper (Fig 1-3). The wax records are then placed on top of a blank card, the location of each tooth is transcribed and the wax records are discarded. Each arch as well as the right and left sides are identified. The patient's name is marked on the template, and the template is retained with the patient's dental record (Fig 4-6).

Knowing which teeth are to be isolated for each appointment, the assistant can place the template over a piece of rubber dam and mark the holes with a felt-tip pen or similar marker. Once located, the correct size holes are punched in the rubber dam (Fig 7, 8).

Fig 1 Packaged beeswax sheets are usually separated by thin sheets of paper. Take one beeswax sheet and one of the pieces of paper and fold the sheet of wax in half. The folded paper prevents the two pieces of wax from being compressed into each other when the wax imprints of the tooth surfaces are made.

Fig 2 Trim the folded beeswax to fit the patient's mouth. Insert it so that all occlusal and incisal edges can register on the wax. Ask the patient to close the teeth.

Fig 3 Remove the wax from the mouth. Unfold the two parts. Remove and discard the paper.

1

2

3

Fig 4 Place the wax on a 5 x 8 inch card with the imprints down. Position the upper record so that the central incisor imprints are about one inch below the top edge of the card. Register the centre of the occlusal and incisal surfaces of the teeth by pushing the pencil point through the wax and rotating it so as to mark the card. Position the lower record so that the lower incisors are about one inch above the bottom of the card and repeat the marking procedure.

Fig 6 At the location of each tooth punch a hole through the card. The template is then ready for use.

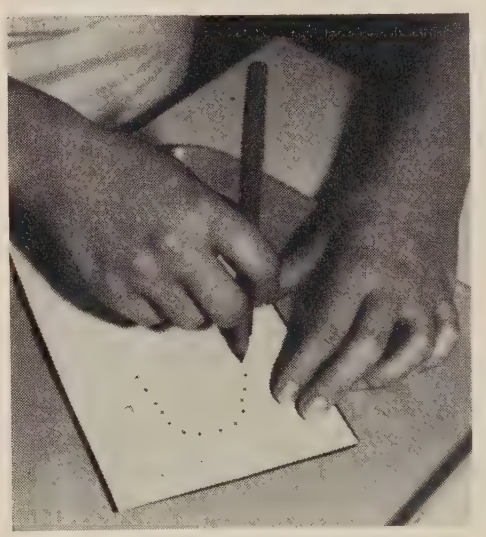


Fig 7 Use a felt-tip pen to mark through the holes in the template onto the rubber dam surface. The correct size holes are then punched in the rubber dam.

## Advantages

A custom template offers several advantages. The rubber dam can be prepared ahead of time. It will fit accurately and this accuracy can be obtained repeatedly. Furthermore, the task of preparing the rubber dam can be delegated to auxiliaries with reasonable confidence in the outcome.

Doctor Spedding is associate professor of paedodontics and Doctor Cooper is assistant professor of restorative dentistry and director of the dental auxiliary program, College of Dentistry, University of Kentucky, Lexington 40506.

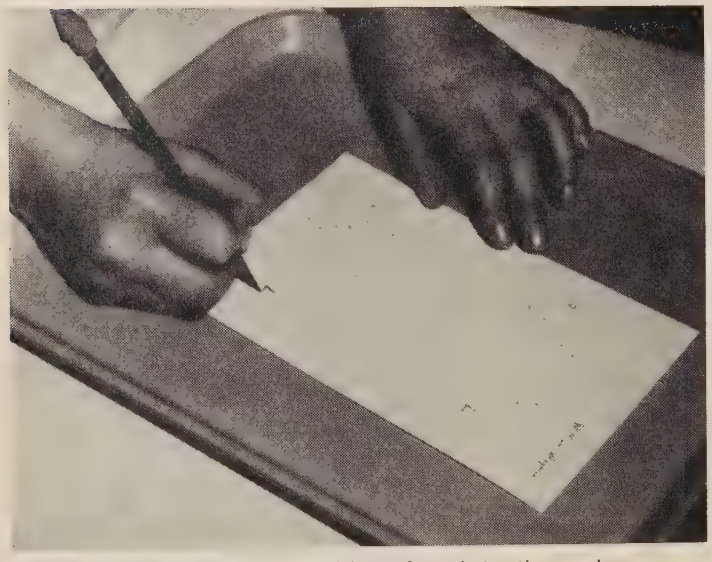


Fig 5 After recording the position of each tooth, mark the patient's name, the dental arch and the right and left sides of the arches on the card.

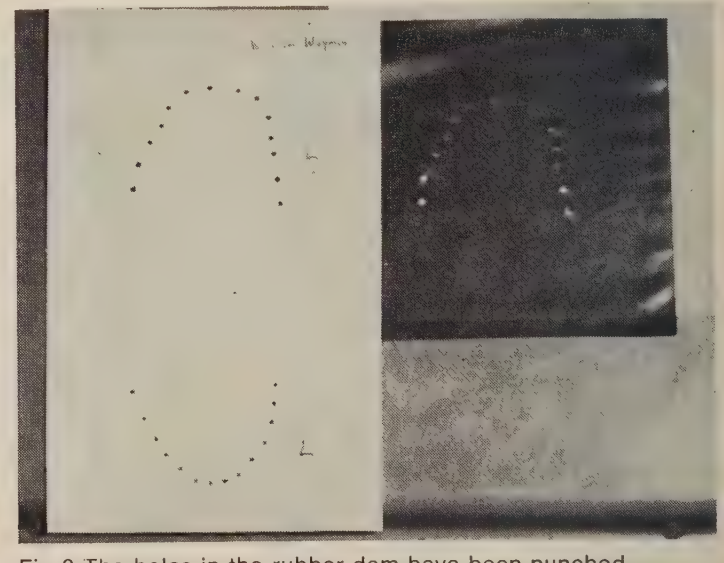


Fig 8 The holes in the rubber dam have been punched at the locations determined by the template.

## Book Reviews

### Hospital Dentistry

*J. R. Hooley. Philadelphia, Lea & Febiger, 1970. (Available from The Macmillan Company of Canada Limited, Toronto) 204 p. Illus. $13.75*

The subject of dental practice in the hospital is treated concisely and clearly in this well organized text. The first three of its 11 chapters deal with the organization, administrative set-up and typical by-laws of American hospitals. These elements are similar on both sides of the international border except for minor differences in nomenclature (for example, Americans use the term "medical executive committee" where we refer to a "medical advisory committee").

Chapter 4 is devoted to "ward procedures," including the use and interpretation of hospital records, laboratory tests, and the protocol for requesting and giving consultations. This chapter alone is worth the price of the book. Hooley explains the structure which governs all professional services in the hospital. Misunderstanding of this framework is a major cause of concern and a principal obstacle to dentists who are new to hospital work.

Chapter 5 describes operating room equipment and protocol. It includes a section by Miss Jerry Peters, senior operating room supervisor in the University of California at Los Angeles Hospital. Miss Peters writes about the surgical scrub (another source of uneasiness to hospital dentists).

The next three chapters treat of hospital procedures in oral surgery, paediatric dentistry and restorative dentistry. Hooley wrote chapter 6. Chapter 7 is by J. M. Davis, assistant professor of paedodontics, University of Seattle. P. B. Menges, chief of the dental service at Laurel Grove Hospital, Castro Valley, Calif, wrote chapter 8. Each contributor describes in more or less detail the methods of operating, patient management routine, equipment and instruments that work well for him. While no two dentists will ever agree entirely about these things, all three of these chapters contain useful information or ideas.

The remainder of the text presents Hooley's ideas on design, staffing and equipment; also his views about the hospital as a centre of continuing and postgraduate education. He comments on American standards of accreditation and related American Dental Association guidelines. These make very interesting reading even though they are not really relevant to Canada.

Finally, the six appendices provide a summary of much-needed information which is difficult to find elsewhere. Included are a glossary of commonly used abbreviations and tables of normal laboratory values.

This concise, readable book is most valuable to the dentist who wants to expand the scope of his practice to include hospital service.

*Ray Mulrooney*

### Thoma's Oral Pathology

*R. J. Gorlin and H. M. Goldman, ed. Ed 6. Vol 1 and 2. St. Louis, The C. V. Mosby Company, 1970. 1139 p. Illus. $65.45*

Thoma's textbook, a standard work in its field, has been re-edited and published as ". . . an entirely new book dedicated to an outstanding pioneer in oral pathology." The editors have drawn on the services of several contributors.

Regrettably, some aspects of pathology like fractures of the jaws and teeth have been omitted. Elsewhere, considerable space is devoted to exotic diseases, particularly in the field of developmental malformations of the head and neck. These may have an academic interest, but their value for undergraduate students and practising dentists is rather limited.

The book also has several controversial statements. For example, on page 364 it is claimed that an ill-timed surgical intervention (tooth extraction) in the presence of a periapical abscess may cause extension of the infection and necrosis of bone (osteomyelitis). This contradicts Thoma's statement (in the fifth edition) that osteomyelitis never develops after the extraction of an abscessed tooth.

Some chapters review what is usually available in standard textbooks of general pathology. This is exemplified by chapter 15 which deals, among other things, with mineral metabolism and vitamin disorders.

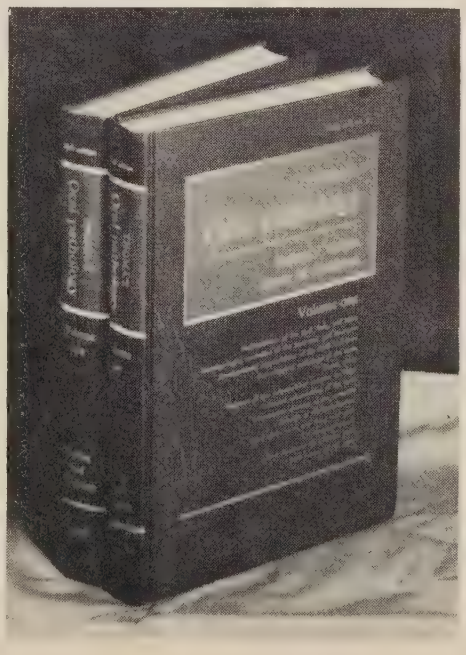
The contributors occasionally digress beyond the confines of the subject at hand–as in their discussion of pyoderma, impetigo, folliculitis and erysipelas, all of which are described under the title of infectious oral diseases.

Many chapters dwell on rare diseases and tend to gloss over the clinical aspects of the more common conditions encountered by the practising dentist. One example may suffice: the book devotes one page and four photographs to Wegener's granulomatosis but dismisses pregnancy tumours in a single paragraph with no illustrations.

Chapter 22 presents a new classification of salivary gland tumours. They are divided into sialadenomas, which include benign and malignant primary salivary gland tumours, synsialadenomas and parasialadenomas. The classification of carcinomas under the heading of adenomas is incongruous and incompatible with standard terminology.

Despite these shortcomings, the book is useful as a reference text and as a supplement to other more concise and practical books devoted to oral pathology.

*W. B. Donohue*



### The Pharmacological Basis of Therapeutics

*L. S. Goodman and Alfred Gilman, ed. Ed 4. Toronto, Collier-MacMillan Canada Limited, 1970. 1794 p. $27.50*

This is the fourth edition of this classic textbook of pharmacology. Its survival over a 30 year period attests to its value and popularity.

The original edition had three objectives: correlation of pharmacology with related medical sciences; reinterpretation of the actions and uses of drugs in light of important advances in medicine; and emphasis on applications to therapeutics.

The latest edition maintains this approach. Clinical emphasis is again in evidence. In addition, the authors repeatedly stress the impact of pharmacology on society, public welfare and the quality of the environment.

Because it distinguishes well-established, safe and effective agents so clearly, dentists will find this book useful in the clinical evaluation of drugs. I also recommend it as a reference for readers concerned about "drugs and society" or clinicians interested in therapeutic value.

*Clifford Reynolds*

### Atlas of Orthodontic Principles

*R. C. Thurow. St. Louis, The C. V. Mosby Company, 1970. 231 p. Illus. $25.85*

Doctor Thurow, a respected dental educator, is well qualified to compile an atlas of orthodontic principles. He succeeds in his intention "to provide a pictorial overview of *some* of the basic concepts that are part of orthodontics." Six chapters are devoted to record taking, analysis of forces and movements, and functional analysis of dental mechanism. The material is well presented and profusely illustrated with easily understood drawings. The chapter on cephalometrics is particularly good.

The remaining three chapters outline some of the practical problems encountered in the developing dentition and suggest some procedures to obviate these difficulties.

Why the author chose the particular "basic concepts" that he did is difficult to understand. The result is uneven, with insufficient space given to growth and development and too much space allotted to model trimming and elementary discussion of forces. This limits the book's usefulness for the orthodontist. The book is nevertheless valuable for students and general practitioners who like to do some orthodontics.

*Albert Jarvis*

### Roentgenographic Interpretation for the Dentist

*S. N. Bhaskar. St. Louis, The C. V. Mosby Company, 1970. 196 p. Illus. $20.35*

Radiology's contribution to the diagnostic process was previously emphasized in Colonel Bhaskar's *Synopsis of Oral Pathology,* now in its third edition. His classification of radiographic appearances, drawn from the *Synopsis of Oral Pathology,* forms the basis for this new book. Much of the illustrative material is also taken from his earlier work.

An introductory chapter on normal landmarks serves as a basis for recognizing deviations from normal. Radiographic appearances are categorized into (1) radiolucencies, (2) radiopacities, and (3) a mixture of both. Lesions are further subdivided according to site, number and behaviour. The clinician is thus provided with an orderly, methodical approach to radiographic evaluation. This approach is admittedly an over-simplification, and it implies a certain uniformity in the appearance of lesions which does not in fact exist. Bhaskar's method is nevertheless useful for obtaining a quick, differential interpretation.

The book is neither encyclopaedic, nor was it intended to be. Supplementing the abbreviated text are references at the end of each chapter. These constitute a reading list for the reader who desires greater depth. The index is adequate.

Though the author stresses the importance of high quality radiographs as a prerequisite for accurate interpretation, the radiographic reproductions, in the review copy at least, are rather disappointing. Explicit visibility is imperative if the reader is to appreciate subtle differences, and these for the most part are not evident.

The book is relatively expensive in terms of its content and compared to other texts in this field. Its greatest appeal will be as a chairside manual for the busy practitioner who seeks an initial screening mechanism without the frustration of searching in more comprehensive texts.

*D. W. Stoneman*

### Theory and Practice of Crown and Fixed Partial Prosthodontics (Bridge)

*S. D. Tylman. Ed 6. St. Louis, The C. V. Mosby Company, 1970. 1023 p. Illus. $26.15*

This latest edition updates a book that is widely used as a reference. It will appeal to teachers and students and, perhaps to a lesser extent, to practitioners. Tylman follows the format used in previous editions, drawing on his own wide experience as well as that of other contributing authors.

As introductory history of crown and bridge prosthodontics is followed by a discussion of examination, diagnosis and treatment planning. The stomatognathic system is described by Parker Mahan of Emory University, and there is a chapter on crown and bridgework for elderly people by Arthur Elfenbaum of Northwestern University. Tylman describes numerous intra- and extracoronal and radicular preparations with instructions for their execution.

Direct and indirect retention methods are explained in a section that also presents methods of constructing dies and models and deals with the handling of impression materials, stones, waxes, investments and casting golds.

Ceramic materials receive separate consideration. An outline of the laboratory technique of using such material alone or in conjunction with a metal infra-structure will enhance the reader's understanding of the subject. John W. McLean of London, England, has supplied recent information about alumina-reinforced ceramics; similar details on acrylic resins are also included.

Tylman completes this phase of the book with a discussion of pontics, their form and function and their relation to the fixed bridge. Included also is a section on rigid and non-rigid connectors.

Elsewhere he shows how to construct a fixed partial denture that is in harmony with mandibular movement. George Moulton, Emory University, and Niles Guichet, University of California, describe the kinematic facebow, the pantograph and an adjustable articulator which can utilize mandibular movement records to construct such an appliance.

R. C. Brumfield's chapters on the mechanics of crown and bridge construction have been retained; they are as pertinent today as they ever were.

Apart from the descriptions of certain outdated dowel crowns — material which has been retained from earlier editions – this book remains one of the classics in its field.

*W. H. Boyles*

### Diet and the Periodontal Patient

*J. W. Clark, E. Cheraskin, W. M. Ringsdorf, Jr., and S. S. Arnim. Springfield, Ill, C. C. Thomas, 1970. (Available from The Ryerson Press, Toronto) 378 p. Illus. $19.50*

It was a recent White House Conference in Washington that focused attention on the widespread existence of malnutrition in the United States. Nutritional ignorance may be a more potent cause of malnourishment than poverty, the participants concluded.

Facts like these are the background for this highly recommended text written to help practitioners, teachers and students cope with diet as related to the periodontal patient.

The book is divided into three sections. The first describes the periodontal disease process, the characteristics of the American diet and the mechanisms of malnutrition. The cardinal points in this section are that adequate diet is important for periodontal health and that anything which alters cellular resistance can affect the progress of periodontal disease.

The second section describes the functions of various nutrients in relation to host resistance and susceptibility. The effect of diet on human periodontal tissue is illustrated by an analysis of 54 controlled clinical trials recorded in the English language literature.

The final section shows how detection and treatment of malnutrition can be incorporated into an ordinary dental practice. Diagnosis requires care in interpreting routine observations, supplemented where necessary by special procedures such as biochemical determination, functional tests and diet records.

The authors illustrate the clinical application of diet therapy by outlining improvements in different periodontal parameters when nutrition is added to the therapeutic armamentarium.

Much of the confusion over the clinical manifestations of malnutrition arises from texts that dwell on the severe classical deficiency syndromes. The much commoner grades of malnutrition seen in this country are unlikely to produce such readily identifiable manifestations. Consequently, "it is the ability to correlate that is the key to the successful assessment of the role of nutrition in the aetiology of periodontal disease."

The authors have appended an excellent bibliography for readers who wish to pursue the subject in greater depth.

*S. M. Borden*

### Occlusion: A Concept for the Clinician

*I. F. Ross. St. Louis, The C. V. Mosby Company, 1970. 293 p. Illus. $24.50*

Doctor Ross, who is professor and chairman of the Department of Periodontics at the New Jersey College of Medicine and Dentistry, explores the suggestion that "destructive occlusal forces contribute significantly to the loss of the teeth, that trauma from occlusion is reversible only if the causes are removed and if it is treated early enough, and that it is a part of (not separate from) chronic periodontal disease in many adults."

His text is intended to help the clinician handle occlusal relationships. It does this concisely and well.

The handsomely bound book has four main sections. The first is a concise presentation of the physiology of occlusion and anatomy of associated structures. It also introduces a new concept in terminology for occlusal anatomy.

Trauma from occlusion is discussed in a frank and open manner in the second section. Ross achieves this by using non-technical language which in turn makes for fairly easy reading.

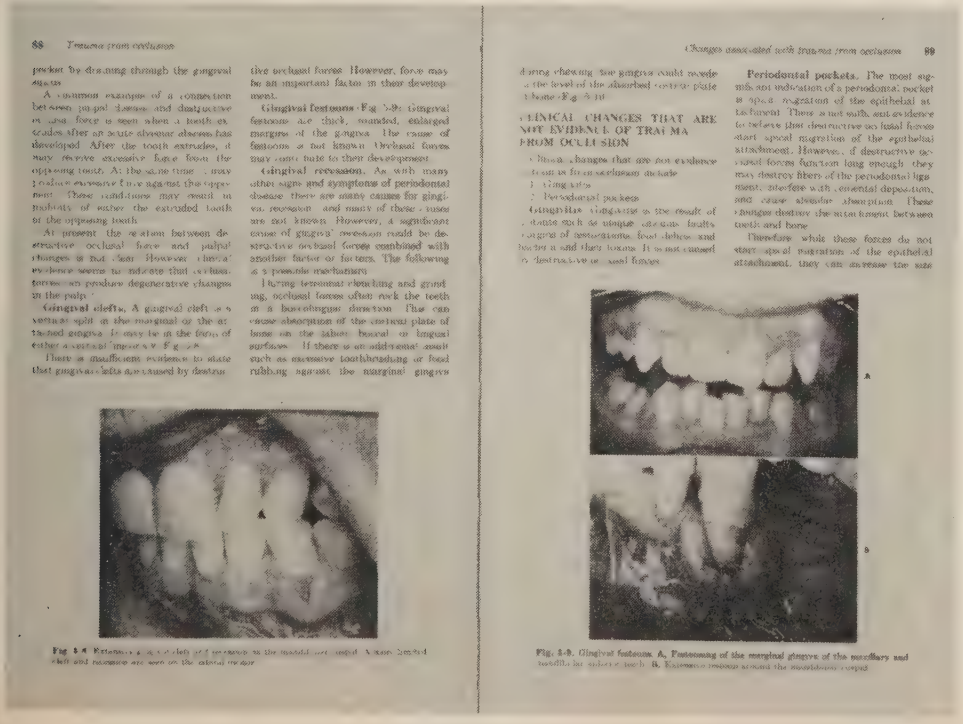
The third section deals with treatment considerations which are discussed in great detail. Several approaches are introduced; no single method is advocated as a panacea. The illustrations are clear and pertinent. They supplement and effectively strengthen the narrative.

Coronal reshaping, in the final section, is broken down into six chapters. Here the author has succeeded in combining orthodox procedures with new approaches which differ from those commonly used.

In his opening remarks Ross observes that "the book is based on pragmatic principles." He feels "that too few carefully observed, carefully controlled long term studies of occlusal problems have been done." I would concur wholeheartedly. Under the circumstances the author has created a commendable text.

*D. A. Anderson*

Occlusion: A Concept for the Clinician.



## Educational Films

The Canadian Dental Association sponsors the distribution of the following eight 16mm educational films which may be borrowed without cost. The films may be booked from Modern Talking Picture Service, Inc, 1875 Leslie Street, Don Mills, Ont. Telephone: 444-7347.

TEETH ARE TO KEEP col, sd, 11 min. A National Film Board production. This film explains, using animation, how children should remember to care for their teeth. (For elementary schools only.)

DANNY'S DENTAL DATE col, sd, 22 min. Using puppets, this film discusses the teeth and what they mean to everybody. (For elementary schools only.)

THE CHALLENGE OF DENTISTRY col, sd, 28 min. A thoughtful message for young men and women interested in a career in dentistry; subjects to take in school, nature of professional study, cost, etc.

DENTISTRY THROUGH THE AGES OF MAN col, sd, 23 min. This film acquaints the viewer with key concepts of modern dentistry and stimulates a desire to take advantage of its benefits. After a brief introduction contrasting the world of modern dentistry with that of prehistoric man, the film demonstrates the need for dental care throughout life, beginning with infants and progressing through childhood, youth, adulthood and old age. (Health – general interest.)

WHY FLUORIDATION? col, sd, 14 min. The subject of fluoridation is covered in depth in this excellent film. Answers are given to the effectiveness and safeness of using fluoride. This film is a must for all to see how the use of fluoride in water can provide stronger and healthier teeth. (Health – general interest.)

ORAL CANCER col, sd, 31 min. Presents a detailed examination for clinically detectable cancer of the mouth, illustrating with data the value of early detection. (Available to the dental profession only.)

ORAL EXFOLIATIVE CYTOLOGY col, sd, 18 min. Smear technique for earliest detection of possible mouth cancer. (Available to the dental profession only.)

THE DENTIST AND CANCER col, sd, 21 min. Stresses methods of biopsy, prompt treatment and oral prostheses. (Available to the dental profession only.)

## Library

The library of the Canadian Dental Association is open daily from 9:00 a.m. to 5:00 p.m. except Saturdays and Sundays. Books and periodicals may be borrowed by members by writing to the Librarian, Canadian Dental Association, 234 St. George Street, Toronto 180, Ont. Books are loaned under the following terms: (1) The borrowed book may be retained for a two week period from the date received by the borrower. (2) Renewal for a further two week period will be permitted provided the book is not requested by another member. (3) Postage on books is paid by the Association. New books are listed periodically in the Journal.

## Additions to the Library

AMERICAN DENTAL ASSOCIATION. Guide to dental materials and devices, 1970-1971. Ed 5. 247 p. Illus. $3.00

BRITISH SOCIETY FOR THE STUDY OF ORTHODONTICS. Transactions, Vol 55, 1968/9. Bristol, John Wright & Sons, Ltd, 1970. 194 p. Illus

BRUGIRARD, J. Etude du comportement électronique des métaux et alliages dentaires. Paris, Julien Prélat, 1970. 282 p. Illus. 88F

CANADA, MINISTER OF NATIONAL HEALTH AND WELFARE. Safety code; x-rays in medical, dental and paramedical diagnostic radiology. RPD-SC-4, January 1968. 33 p

GUGGENHEIM, B. Enzymatic hydrolysis and structure of water-insoluble glucan produced by glucosyltransferases from a strain of streptococcus mutans. (Helvetica Odontologica Acta, Vol 14, Nov 1970, Suppl V) Pages 89-108. Illus

HINE, M. K. Review of dentistry: questions and answers. Ed 5. St. Louis, Mosby, 1970. 596 p. $16.80

KLEIN, P. A. Les apports de la piezographie à la prothèse adjointe mandibulaire. (Thèse). Paris, Dactylo-Sorbonne, 1970. 219 p. illus

PETERSON, C. T. Oral diseases: concepts and care. Lahore, Pakistan Dental Review, 1970. 59 p. Illus

PINDBORG, J. J. Pathology of the dental hard tissues. Philadelphia, Saunders, 1970. 443 p. Illus. $31.35

SAYWELL, J., ed. Canadian annual review for 1969. Toronto, University of Toronto Press, 1970. 514 p. $25.00

SOCIETE FRANCAISE D'ORTHOPEDIE DENTO-FACIALE. L'orthodontie française. Vol 40-1969. Paris, Julien Prélat, 1969. 427 p. Illus. 100F

WORLD HEALTH ORGANIZATION. Dental health education. Report of a WHO Expert Committee. Geneva, WHO, 1970. 28 p

## Service de cinémathèque

Les films suivants de 16 mm sont mis à votre disposition par l'Association Dentaire Canadienne et ils sont prêtés gratuitement. Le titre marqué d'un "X" est offert en français ou en anglais, les autres existent en anglais seulement. Les demandes de réservations doivent être faites directement au Service de Cinémathèque Inc, 485 rue McGill, Montréal 125, Qué. Téléphone: 878-3644

IL FAUT GARDER SES DENTS (TEETH ARE TO KEEP) coul., son., 11 min. Une réalisation de l'Office national du film, utilisant le dessin animé. Ce film explique comment les enfants doivent se rappeler le soin à donner à leurs dents (Santé — écoles élémentaires).

LE RENDEZ-VOUS DENTAIRE DE DANNY (DANNY'S DENTAL DATE) coul., son., 22 min. Faisant usage de marionnettes, ce film traite des dents et ce qu'elles signifient pour tout le monde (Santé — écoles élémentaires).

LE DEFI DE L'ART DENTAIRE (THE CHALLENGE OF DENTISTRY) coul., son., 28 min. Un message bien fondé adressé aux jeunes hommes et femmes intéressés à la carrière dentaire; les sujets qu'il leur faut apprendre à l'école, la nature des études professionnelles, leur coût, etc. (Carrière — écoles).

L'ART DENTAIRE A TRAVERS LES AGES DE L'HOMME (DENTISTRY THROUGH THE AGES OF MAN) "X" coul., son., 23 min. Après avoir établi le contraste entre le monde moderne de l'art dentaire et celui de l'homme préhistorique, le film démontre le besoin des soins dentaires durant toute sa vie, depuis la tendre enfance, à l'adolescence, à la pleine maturité et la vieillesse. Fait aux Etats-Unis, ce film est offert dans ses deux versions française ou anglaise, on est donc prié de spécifier laquelle on désire (Santé — intérêt général).

POURQUOI LA FLUORATION? (WHY FLUORIDATION?) coul., son., 14½ min. (admis pour la télévision). Un beau film qui renseigne sur l'efficacité, la sûreté, la possibilité de procéder sans aucun danger à la fluoration. Ce film tranche plusieurs questions souvent posées sur le sujet et il le fait sans contredit (Santé — intérêt général).

CANCER DE LA BOUCHE (ORAL CANCER) coul., son., 31 min. Ce film présente un examen détaillé des manières de découvrir en clinique la présence du cancer de la bouche, illustrant avec preuve à l'appui l'importance de déceler la maladie dès son début (réservé pour les membres de la profession).

CYTOLOGIE D'EXFOLIATION DE LA BOUCHE (ORAL EXFOLIATIVE CYTOLOGY) coul., son., 18 min. La technique de détection hâtive du cancer de la bouche par enduits (réservé pour les membres de la profession).

LE DENTISTE ET LE CANCER (THE DENTIST AND CANCER) coul., son., 21 min. Ce film souligne les méthodes de biopsie et leur traitement rapide, ainsi que les prothèses dentaires (réservé pour les membres de la profession).

## Bibliothèque

La bibliothèque de l'Association Dentaire Canadienne est ouverte tous les jours, excepté le samedi et le dimanche de 9h. a.m. à 17h. p.m. à tous les membres et à toute autre personne intéressée. Les membres peuvent emprunter des volumes et des revues dentaires en écrivant à la Bibliothécaire de l'Association Dentaire Canadienne, 234 St. George Street, Toronto 180, Ont. Voici les conditions d'emprunt: (1) Les volumes peuvent être empruntés pour une période de quinze jours, à compter de la date de réception. (2) Un renouvellement de deux semaines est accordé, pourvu que dans l'intervalle, aucune demande n'ait été faite pour les mêmes volumes. (3) L'Association paie les frais de port. De nouveaux volumes seront à votre disposition au fur et à mesure qu'ils seront publiés. La liste de ces volumes paraît dans le Journal aussi souvent que possible.

# Breakthrough in lip cancer

No affliction that man is heir to is quite so shrouded with dread and mystery as cancer. The word itself is synonymous with death—and with protracted suffering. For no part of the human body is immune to cancer. The malignancy eats into nerve, muscle, bone and organ, blood and lymph alike. And it acquires an extra measure of terror because of the stealth with which it arises and because its deadly origins are inexplicably intertwined with the secret of life itself.

This year alone 600 Canadians will die of oral cancer. Of the 22 odd million Canadians now alive and well, fully 25 per cent, or some five and a half million will one day learn they have cancer. Of these, about three and a half million will die, and even some of those who are saved may not consider themselves lucky. Many will be disfigured by the therapists' attempts to excise or burn away the malignancy. Others will linger on, for months, for years, some for quite a few years.

Faced with these grim statistics, it is small wonder that the war against cancer has enlisted the talents and dedication of so many of the world's most outstanding scientists. The result is that, despite the picture of almost unrelieved gloom projected by the statistics, the battle has entered a new and hopeful phase. There is no cure in sight; but recent discoveries are lifting the level of cancer research to a dramatic new plateau.

There is no lack of evidence that the new optimism is warranted. Just three decades ago only one cancer patient in five had a chance of survival. Today the figure stands at nearly 40 per cent. In some forms of cancer the survival rate has risen even more dramatically. Now 60 to 80 per cent of the female patients with breast cancer are being saved by the surgeon's knife. New advances in radiation therapy have drastically improved the chances of patients with Hodgkin's disease. And drug therapy is prolonging the lives of children with leucaemia.

But of all recent breakthroughs, none may evoke quite as much attention from dentists as the report by D. L. Anderson in this issue of the Journal. What Doctor Anderson did was to prove that most lip cancers are due to prolonged exposure of light-skinned individuals to ultraviolet rays from the sun. In the Prairie and Maritime provinces, where lip cancer incidence is high, almost all men are white and many are employed in outdoor occupations. Since effective sunscreening agents are available, most lip cancers in these provinces are probably preventable.

On balance, this adds up to one of the most promising developments to date. What remains to be seen is how quickly other breakthroughs may lead to yet more dramatic and productive ones so that, as some cautious researchers envision, the war against cancer may be won by the end of the century.

# Glare of the footlights

The report of the Wells Committee on dental auxiliaries (summarized elsewhere in this issue) has again pushed dentistry to the forefront of the public stage. The exposure is not new, but the spotlight is more intense than ever.

The subject has never really been off-stage since the Royal Commission on Health Services presented its very comprehensive report to Parliament in 1964. Various provinces subsequently commissioned their own inquiries to present the views as seen from the provincial boxes. Most of these investigations ranged over the entire mosaic of the health care complex; only the Wells Committee fastened its gaze exclusively on the dental performers. Most of the inquiries had recourse to health professionals; only the Ontario Committee on the Healing Arts excluded such practitioners in order to gain a broad perception of the public interest, uninfluenced by considerations of professional privilege. Nevertheless, when a series of inquiries, one after another, bring forth conclusions that are essentially similar, they deserve serious attention.

With singular unanimity these reports tell us that too many Canadians receive little or no dental care. They stress that governments and the profession must cooperate in formulating plans to improve the dental health of the public. They take the position that there

*(Continued on page 150)*

# Parler d'abord

Montréal sera probablement fluorée, en dépit des objections du Maire Drapeau. Malgré son allure moderne, la ville de Montréal reste l'une des dernières grandes métropoles du continent nord-américain à ne pas bénéficier des bienfaits de la fluoration.

La province de Québec entend modifier la Loi de l'assurance-maladie en 1971 afin de couvrir les soins dentaires pour enfants jusqu'à l'âge de sept ans. Le ministre des Affaires sociales, M. Castonguay, a déjà déclaré qu'au lieu d'augmenter les effectifs dentaires, il serait beaucoup plus simple et moins coûteux de fluorer l'eau de consommation. Bienvenue au vingtième siècle!

Les politiciens ont souvent la fâcheuse tendance de parler d'abord et de réfléchir ensuite. En novembre dernier, M. Bourassa, lors d'une conférence de presse, annonçait que le gouvernement provincial inaugurerait, au printemps, un régime dentaire pour enfants jusqu'à l'âge de sept ans. D'après des rapports qui nous sont parvenus, la firme Urwick, Currie, qui avait fait une étude des besoins dentaires des enfants québécois aurait recommandé d'instaurer un régime dentaire pour enfants jusqu'à l'âge de cinq ans.

Au milieu de la crise qui ponctuait les enlèvements de Messieurs Cross et Laporte, le moment semblait propice pour présenter à la population une offrande qui pourrait aider à la calmer. Mais pourquoi s'arrêter à l'âge de cinq ans. Allons-y donc pour sept ans. Quelle différence y a-t-il?

Comme tout dentiste le sait très bien, il y a une grande différence. A l'âge de sept ans, l'enfant possède déjà ses quatre premières molaires permanentes (souvent les premières à être cariées ou extraites) et les huit incisives permanentes avec leurs problèmes d'alignement et de besoin de redressement orthodontique.

On parle d'abord, et on réfléchit ensuite.

Au moment de la déclaration de M. Bourassa, la Régie de l'assurance-maladie n'avait même pas à son service de dentistes-conseils. C'est seulement après la proclamation politique de M. Bourassa que la Régie a engagé un dentiste à plein temps et deux autres à temps partiel.

On parle d'abord, et on réfléchit ensuite.

La déclaration a également été faite sans consultation préalable avec les organismes négociateurs représentant la profession dentaire au Québec pour savoir si cette entreprise gouvernementale était réalisable ou même recommendable.

On parle d'abord, et on réfléchit ensuite.

Le dernier acte de cette comédie d'erreurs est que le gouvernement parle maintenant d'instaurer la fluoration au Québec, à peu près 20 ans en retard!

On parle d'abord, et on réfléchit ensuite.

Le gouvernement de l'Ontario a préféré établir une étude-pilote de quatre ans pour évaluer les besoins dentaires des enfants ontariens avant de s'aventurer sur la route extrêmement coûteuse des soins dentaires. Mais le gouvernement québécois n'a pas le temps pour de telles fadaises. Elle commande une étude de quelques mois et la modifie ensuite pour des besoins diplomatiques.

On parle d'abord, et on réfléchit ensuite.

Il semble maintenant que M. Castonguay se soit rendu compte de la complexité du problème. Le régime ne pourra pas débuter au printemps: il faudra d'abord en étudier les détails, a-t-il décidé.

Bonne idée! Mieux vaut rebrousser chemin un peu que de se précipiter vers l'avant sans reconnaître les écueils qui pourraient prévenir la réussite d'une entreprise de laquelle dépend la santé dentaire des enfants du Québec.

# Simple, mais il fallait y penser!

Le leader parlementaire du Ralliement créditiste à l'Assemblée nationale, M. Bernard Dumont, s'est élevé contre la généralisation de la fluoration de l'eau, expliquant qu'une telle initiative allait entraver les libertés individuelles.

Parlant devant la Commission parlementaire des Affaires sociales, il a déclaré que son parti préférait plutôt une aide favorisant l'installation d'un contenant de fluorure au robinet de chaque famille.

Le progrès n'a vraiment pas de limites!

# EXECUTIVE DIRECTOR'S PAGE

**W. G. McIntosh, DDS**

From the type of publicity the mass news media have been giving the Wells Committee report on dental auxiliaries, one would think that denticare was the report's main objective.

Actually, the urging of denticare was the thirty-first recommendation out of a list of 43. The proper name of the committee best typifies its aims — the Ad Hoc Committee on Dental Auxiliaries. All recommendations made by the committee deserve scrutiny by all dentists in Canada and their associations, including the CDA.

You can't blame the public press for concentrating on the denticare issue. It is important to most Canadians and that's the readership or the viewing audience of the mass media. We in the dental profession often have to take a back seat, as do other specialized groups, to news which is broader and more "sensational."

But for a start, let's look at the recommendation for denticare.

The committee reiterates the proposal of dental care for all Canadians. Since the Royal Commission on Health Services released its report in 1964, several commissions or committees have made similar proposals. Some of these bodies were provincial, others federal.

The point that the CDA has been stressing is the need for uniformity should government carry out the committee's proposal that "dental care in its broadest sense be offered to all Canadians." This deserves careful attention by the profession.

Also, the CDA's policy has been that any proposed program should not be universally subsidized, and that prevention and education should be an integral part of the program. Otherwise, the incidence of dental disease is not likely to be reduced.

The Wells Committee does suggest that denticare start with a national dental program for children encompassing prevention, education and treatment. This is in accord with the CDA's dental health plan for children formulated in 1968.

In connection with the children's program, the committee's thirty-fifth recommendation mentions dental care being provided through both public health and private practice spheres of dentistry. The CDA plan contained a similar suggestion, but the Wells Committee is the first government report to take up the proposal.

Getting back to the main objectives of the report, recommendations 1 and 2 suggest that duties of dental assistants and dental hygienists be defined in provincial dental acts. The report suggests that this be done as a guide for legislators and educational authorities. This goes against what we believe are the wishes of the Canadian dental profession.

Because we believe the dentist must assume full responsibility for the welfare of his patient, only he should be responsible for detailing the duties of those working under his supervision.

The first recommendation also suggests that accredited dental assistants be allowed to work in the mouth. This point should be closely studied by CDA members. Last year, British Columbia gave this principle legal support and there seems to be a trend this way in the Prairies.

The second recommendation has even more significant implications by suggesting that accredited dental hygienists be allowed to prepare and restore teeth with specified filling materials. The CDA has long opposed the "cutting and severing of tissues" by non-dentists.

Another interesting recommendation is the proposal to create a class called dental technologists who can make appliances for the public on prescription from a dentist. These technologists — technicians who have completed higher accredited educational programs — would work in dental offices and clinics under the supervision of a dentist.

Recommendations 22 to 30 specify a proposed national legislative framework governing all auxiliaries. Again, if the principle of expanding the use of auxiliaries catches on across Canada, there will again be a need for uniformity and possibly a Canadian Council on Dental Auxiliaries, as proposed in the report.

I think these are the topics of the day that the grass roots of our profession should be talking about in regional and local society meetings. There will surely be much discussion upcoming at the provincial and CDA level shortly.

# Letters/Courrier

*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponsible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal*

**PEI auxiliary study**

My compliments to Doctor Romcke for supervising a first Canadian practical study on the use of auxiliaries in the dental office (February Journal).

There have been other studies on the productivity and use of auxiliaries with various kinds of training in Alabama, Louisville, Philadelphia and several armed services. But the Prince Edward Island study, to my knowledge, is the first one in private practice in Canada. It can also be compared to a public health approach as both phases are administered by the same person.

Last July the CDA Board of Governors accepted the fact that auxiliaries may now perform supervised, delegated duties within the scope of their formal training. This is a long-sought progressive step.

A word of caution, however, about possible misunderstanding. While the CDA Council on Auxiliary Services has for some time promoted the expansion of legal duties of auxiliaries, it by no means wishes to dictate a practice pattern for every dentist in Canada.

This multiple personnel dental team concept is not suitable for everybody because of differences in administrative capacity, personalities and finances. What the Council wishes to have clearly understood is that it wanted to create a legal environment for those who choose to deliver dental service in this manner, and not to "dictate" future patterns for all dentists.

Once again my compliments to Doctor Romcke for his imagination. I look forward to seeing the final results.

*E. F. Allison, DDS*
*Chairman*
*CDA Council on Auxiliary Services*
*1812 4th St SW*
*Calgary 3, Alta*

**National Dental Examining Board**

*Comments about the National Dental Examining Board registered at last October's Canadian Dental Students' Conference ("Students Probe," January Journal) have brought forth the following informative letter from Doctor D. B. Proctor, NDEB registrar:*

The National Dental Examining Board of Canada was founded in 1952, successor to the Dominion Dental Council and Dental Council of Canada. It was set up as an examining facility for the dental licensing bodies of Canada. Since its inception, all 10 provinces have continuously belonged to the National Board, a feat that neither the Dental Council of Canada nor the Dominion Dental Council was ever able to achieve.

From 1952 to 1970 the NDEB conducted annual examinations for graduates of all Canadian universities and approved American universities. Since that time 2,230 dentists have received its certificate.

In 1966 Doctor Malcolm H. Taylor of the University of Victoria made a study of the examination system of the National Dental Examining Board. His final report contained a number of recommendations. Two of these concerned the accreditation of dental schools in Canada and the elimination of examinations for the NDEB certificate from approved Canadian schools by 1971.

At the CDA meeting in Winnipeg last July, the National Board was given a strong voice on the Council on Education relative to accreditation of dental schools. With this assured, a motion passed by the Board in June 1970 was then put into effect. It specified that graduates of all approved Canadian schools in 1971 and thereafter would receive the NDEB certificate without examination.

At that June 1970 meeting the Board also decided to set what has been termed the Foreign Dentist Examination. This will be held May 25 and June 8, 1971, at the University of Montreal. It is open to foreign graduates from any country provided (1) they are graduates of a university-based dental school, and (2) that this school is listed in the World Health Organization's *Directory of Dental Schools.*

To achieve this decision, it was necessary to have all 10 provinces agree to accept graduates of the Foreign Dentist Examination. Their agreement is contingent on two conditions: (1) the examination must satisfy minimal requirements of practice in each province, and (2) the cost of the examination must be borne by the candidates, not the provinces.

Using the experience of Quebec and Ontario, who previously set similar examinations, a pattern was established. The examination is sequential and con-

sists of three parts: (1) written examinations, (2) a preclinical examination on ivorine teeth, and (3) a clinical examination lasting five days. The written test consists of six papers covering oral diagnosis, radiology and treatment planning; operative dentistry (including fixed partial dentures); prosthodontics (including complete and removable partial prostheses); orthodontics and paedodontics (including preventive and public health dentistry); oral surgery, anaesthesia and endodontics; and oral medicine (including clinical therapeutics, pathology and periodontics). In January of this year, approximately 58 applicants were accepted for these examinations.

The National Board has not been without its stormy moments. Numerous compromises were necessary in order to keep all 10 provinces actively involved. The 12 member Board has one representative from each licensing body in the country and two from the Council on Education.

Its financial situation has always been somewhat precarious, forcing on one occasion an appeal to the licensing bodies for funds in order to carry on the work. To date, it has been maintained solely by the fees of dental students writing the examinations.

Recently, a resolution submitted from Ontario proposed to assess each dentist in that province $4 toward the National Board if the fee for the NDEB certificate were set at $50. The same resolution would have made an NDEB certificate mandatory for all dentists wishing to practise in Ontario as of this year. Limitations of time and the necessity for obtaining agreement from all provinces prevented the adoption of this resolution in time for the 1971 examinations, but it will be brought before the Board at its annual meeting in June.

The Board is obliged to maintain an examining facility for Canadians who graduated prior to 1971 and wish to take out an NDEB certificate. American graduates from approved schools may also write these examinations without taking a clinical examination.

The future role of the NDEB appears to lie in three or four directions. Perhaps the most important of these is in helping to maintain the standard for accreditation of Canadian dental schools so that it will not be necessary to return to the examination system. The Board has to provide an examining facility for Canadian and American graduates who have not previously taken its certificate and who wish to avail themselves of one. It must also provide an examining facility for foreign dentists who wish to practise in Canada. Being removed from the sphere of provincial politics, this facility may prevent a recurrence of events such as the Czechoslovak dental crisis in Ontario in 1969. Finally, the NDEB is also looking into the possibility of setting up a somewhat similar system for dental hygiene so that hygienists will no longer have to write examinations in each province where they wish to practise.

*D. B. Proctor, DDS*
*NDEB Registrar*
*780 Bannatyne Ave*
*Winnipeg 3, Man*

**Labelling of medication**

I read Doctor Gaum's description of "A Postanaesthetic Complication Due to Inadvertent Use of Medication" with great interest (February Journal). Though the article may not seem pertinent on cursory examination, it deals nevertheless with a problem of which we should all be very much aware.

We use so many drugs routinely that we are apt to become careless. Local anaesthesia carpules offer a good example. How often do we read what is imprinted on the glass to verify the type an anaesthetic being injected? After all, we are injecting a drug, and we were taught never to inject anything without prior verification. But instead of reading the label, the anaesthesiologist cited by Doctor Gaum relied solely on its colour.

This example should encourage all dentists to adopt the habit of reading the labels of every drug they use. We should also teach students and others to read and speak out the names of any drugs they are handing over to the dentist. This practice has avoided many complications in hospitals.

*B. K. Arora, BDS, MS, FRCD (C)*
*Professor of Oral Surgery*
*College of Dentistry*
*University of Saskatchewan*
*Saskatoon, Sask*

**Endodontic post fracture**

Doctor Petersen's article (February Journal) about longitudinal root fracture due to corrosion of an endodontic post is a good example of a clinical picture that leaves many questions unanswered with regard to the author's conclusions.

His description of the fractured root syndrome is succinct. However, we have seen this for many years in cases of improper fixed partial denture construction. A posterior four unit bridge with a single abutment, wide pontics and short posts embedded in poor root canals can only end in failure. The problems of occlusion, lateral stress and alignment usually overwhelm the abutments.

Improper endodontic treatment would be necessary to produce enough leakage to corrode any post, let alone a stainless steel one. Furthermore, an apicoectomy as described on the first bicuspid without benefit of retrograde filling or post removal and subsequent endodontic therapy certainly diminishes the likelihood of retaining the tooth. Building a bridge on a split root verified visibly is also open to discussion.

I find it very difficult to accept the term "corrosion fracture" on the basis of the evidence presented.

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*Vancouver 2, BC*

**Three-rooted mandibular molars**

We would like to comment on the paper titled, "Three-rooted Mandibular Molars in the Keewatin Eskimo," by Curzon and Curzon (February Journal). Doctor Somogyi-Csizmazia and I have been associated for several years in providing dental care for Indians of Alberta and Indians and Eskimos of the western half of the Northwest Territories. Doctor Somogyi-Csizmazia has made a study of the incidence of three-rooted lower first molars among Indian people in Alberta, and I have also observed this condition in my years of providing treatment for the population so affected.

*Dorland's Medical Dictionary* defines an "anomaly" as a "marked deviation from the normal standard." The presence of three roots in mandibular first molars of North American Indians and Eskimos is so consistent that I question whether this condition is anomalous rather than a normal occurrence in a fraction of this population. I would like to point out that Indians of Alberta and the Mackenzie district of the Northwest Territories also exhibit this characteristic. Dentists who treat these people or immigrants from Asiatic countries should keep this in mind. They should also remember that the presence of a third root may complicate treatment.

We cannot entirely agree with two other statements in the article. In our experience the third root is just as often well-developed as small and fragile. Its presence can frequently be demonstrated radiographically by a simple change of the angulation of the rays. Doctor Somogyi-Csizmazia has many films which clearly show the third root.

As a matter of interest, we have also seen in Indian children a few lower second primary molars with three well-developed roots.

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# Dialogue

*This month's "Dialogue" deals with the propriety of raising a quoted fee after learning that a patient's treatment is covered by insurance. At their recent annual conference, secretaries of several CDA provincial corporate members expressed concern over complaints from insurance companies when dentists raise a quoted fee after learning that a patient's treatment is covered by insurance. For the practising dentist's viewpoint, "Dialogue" invited comments from D. A. Eisner, Halifax, and D. E. Gifford, Ottawa. Doctor Eisner serves on the CDA Council on Dental Services.*

## Breach of faith

Dentistry, like other facets of society, is undergoing change. Not only are these changes brought about by evolution of ideas within the profession but external influences are also having a significant effect.

For years the practice of dentistry involved primarily the dentist and his patient. The latter's needs were assessed and service was usually rendered without undue discussion about the fee. The patient assumed that the doctor possessed a reasonable degree of skill and that he would be fair in assessing the fee.

This concept began to change as health care costs increased and people became more cognizant of how they were spending their health dollar. More and more patients would ask for a quotation before starting treatment, and dentists were encouraged to discuss their services and fees with their patients.

Fees for professional services are difficult to assess. The dental profession in Canada took a step forward in this regard when it adopted the relative value method of determining dental fees. This system leaves dentists a certain amount of latitude. Not only is there variation in interpretation, but fees can be lowered in certain circumstances if the suggested amount poses a definite financial burden to the patient. These factors could be discussed directly with the patient.

The introduction of a third party has brought about further change, and with it came the real crunch. The dentist was obliged to involve himself in a role that, for many, upset a long tradition in dealing with their patients.

It is reasonable to assume that insurance will pay the dentist's usual and customary fees as determined by the relative value system, and no longer will he have to concern himself with the patient's ability or inability to pay. The responsibility for the provision of funds to pay for the services now rests with a third party — the insurer.

The present assumption is that the dentist, after due consideration of the patient's financial circumstances, relates his fee to the locally established fee schedule. Having quoted a fee, he then learns that the patient is insured and therefore raises his quotation. This practice casts doubt on the practitioner's honour and integrity. It undermines the trust which lies at the core of any relationship between a dentist and his patient. Worse still, it tarnishes the image of the entire profession.

A dentist should carefully appraise all facts relative to his patient before making a commitment. But having made a commitment, he should honour it.

In sum, there is no question about the impropriety of raising a quoted fee after learning that the patient's treatment will be covered by insurance. Abuses such as these destroy the trust that should exist between the patient and his doctor and invite detrimental criticism of the profession.

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## Unprofessional conduct

In a discussion of this subject I shall assume that the word "covered" means that the patient's dental costs are completely paid under an insurance contract.

It is my contention that a dentist who increases his charges because of insurance coverage is as guilty of fraud as an automobile repairman or an appliance serviceman who charges for unrequired repairs.

Over-charging insurance companies is a short-sighted policy because it reflects adversely on the credibility and integrity of the profession at large and results in a higher premium structure which discourages patient participation and eventually destroys the plan.

There are several self-governing professions in this country which enjoy a position of trust in that under government legislation they are allowed to manage their own affairs in the conduct of their public service. In dentistry we have this public trust, and if we are to retain it in the future we must carry on our day-to-day work in a manner that inspires confidence in our public image.

A proper diagnosis and treatment plan, with an estimate of the cost involved, should be presented and fully explained to every patient prior to treatment. The fee, whether reimbursed by insurance or by the patient, should be the same, based on the existing fee schedule which was properly interpreted. When the patient is financially unable to have all treatment completed, the difficulty can often be overcome by scheduling it over a period of time.

Complaint committees of dental licensing boards across Canada are being deluged with protests by dissatisfied patients. The volume of these protests is increasing at an alarming degree. Without a doubt, the main reason is that many practitioners do not sit down and explain what the patient may expect of the dentist and, just as important, what is expected of the patient. If this were done in every dental office, the question under discussion need never arise. Consequently, I consider it unprofessional conduct if a dentist, concerned about the profession's public image, were to increase his fee because of it being an insurance case.

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## Le Canada

### Dossiers dentaires pour les équipages d'Air Canada

Air Canada devrait conserver des dossiers dentaires de tous ses équipages. Ces documents devraient comprendre les fiches d'examen dentaire, les radiographies "bite-wing" et le nom de leur dentiste personnel. Telle est la recommandation faite au principal responsable médical de la compagnie aérienne par le Dr J. D. Purves de Toronto, président de la Société canadienne de stomatologie médico-légale à la suite de l'expérience acquise lors de l'identification des victimes de l'accident du Vol 621 d'Air Canada, qui s'est écrasé à Woodbridge, en Ontario, le 5 juillet dernier.

Le Dr Purves a également recommandé à Air Canada de conserver les radiographies "bite-wing" et le nom des dentistes personnels de tous les employés susceptibles de recevoir des permissions de vol (il y avait 22 de ces employés à bord du Vol 621).

Ces recommandations seront examinées lors d'une prochaine réunion de l'Association internationale du transport aérien.

### Mieux répartir les professionnels de la santé au Québec

M. Claude Castonguay s'est engagé à prendre les mesures nécessaires pour assurer une meilleure répartition des professionnels de la santé à travers la province. Parlant, le 3 février dernier, devant la Commission parlementaire des Affaires sociales, le ministre a déclaré que cette question retenait l'attention du gouvernement, non seulement en ce qui a trait aux dentistes, mais à d'autres catégories de professionnels de la santé, comme les médecins, les pharmaciens et d'autres.

Le Collège des Chirurgiens-Dentistes a suggéré à la Commission parlementaire d'imiter le gouvernement de l'Ontario qui garantit un revenu minimum annuel de $22,000 aux dentistes qui consentent à aller s'établir dans les centres éloignés.

Sans écarter la suggestion d'un revenu minimum garanti qui pourrait s'appliquer à environ 25 dentistes, M. Castonguay a déclaré qu'il y avait plusieurs moyens d'assurer une meilleure répartition des professionnels de la santé dans la province et qu'il pourrait, par exemple, encourager les dentistes à exercer dans les petits centres en leur ouvrant davantage la porte des hôpitaux où ils pourraient se servir de l'équipement actuellement peu utilisé. Le ministre a ajouté que l'extension de l'assurance-maladie aux soins dentaires assurerait des revenus plus stables aux dentistes pratiquant dans les centres moins importants.

D'autre part, la fluoration de l'eau, qui prévient la carie dentaire, conduirait nécessairement à un déplacement des effectifs.

M. Castonguay a rappelé que les CEGEP offriraient prochainement une gamme de nouveaux cours formant des auxiliaires pour les professionnels de la santé, et que les dentistes pourraient recevoir entre 15 et 20 p.c. de plus de clients si certaines de leurs tâches pouvaient être accomplies par des assistants qualifiés en conséquence.

Un tel changement repousserait encore les professionnels dans des centres moins populeux que les villes de Montréal ou Québec, parce que la clientèle serait proportionnellement plus rare.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 28 février 1971:

*Fonds à revenu fixe* $11.567;

*Fonds d'actions ordinaires* $22.855.

L'avoir total (valeur marchande) du régime se montait à $9,504,541.63.

Au cours du mois précédent, les transactions, achats et ventes, ont été les suivantes: achat 6,000 actions de American Hospital Supply, 4,000 actions de Aquitaine Ltd et 4,000 actions de Jim Walter Corp; vente 5,060 actions de Boise Cascade Corp.

Le paragraphe 79B de la loi régissant l'impôt sur le revenu autorise des contributions non imposables à un programme de retraite personnelle, représentant jusqu'à 20 p.c. du revenu, avec un maximum de $2,500.

La Compagnie Trust Royal, qui gère le régime d'épargne-retraite de l'ADC offre deux sortes de placements distincts: un fonds à revenu fixe et un fonds d'actions ordinaires. Les contributions peuvent être faites entièrement ou on partie au(x) fonds que choisit le contributeur. Il peut faire des transferts entre les fonds sans payer d'amendes.

Le fonds à revenu fixe, qui se compose de bons du trésor, d'obligations, d'actions privilégiées et d'autres sécurités à revenu fixe, offre un très bon revenu avec un risque très faible. Le fonds d'actions ordinaires, qui se compose d'actions ordinaires canadiennes, américaines et étrangères soigneusement choisies, a comme objectif principal l'augmentation du capital.

L'adhésion au programme ou le retrait n'entraîne aucun paiement supplémentaire, ni commission.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Chronique internationale

### Le gouvernement américain propose le modèle d'un projet de loi sur les rayons X

Une agence du gouvernement américain a préparé le modèle d'un projet de loi qui servirait à guider les états qui désirent imposer des normes minimales de formation théorique et pratique aux personnes utilisant les rayons ionisants en médecine et dentisterie.

Le modèle de loi propose la délivrance d'un certificat de compétence au niveau de l'état, que devrait obtenir toute personne utilisant les rayons ionisants à des fins de diagnostic et de traitement. Cette disposition s'appliquerait non seulement aux assistantes médicales et dentaires mais aussi aux médecins, dentistes et autres praticiens autorisés.

L'obtention d'un certificat préconisée pour les utilisateurs de rayons ionisants serait basée sur un minimum d'études, d'entraînement et d'expérience ainsi que sur des examens attestant du niveau prescrit de compétence. La loi prévoit la création de bureaux d'examen indépendants pour la technologie radiographique médicale et dentaire.

L'état délivrerait des certificats généraux autorisant les praticiens à irra-

dier n'importe quelle partie du corps humain. Un technicien possédant la formation et l'expérience requises pourrait recevoir un certificat général et irradier n'importe quelle partie du corps, mais seulement sous la direction d'un praticien autorisé.

Le modèle prévoit également deux autres catégories de certificats. La première consisterait en un certificat limité permettant à un praticien, tel qu'un dentiste, d'exposer aux rayons des parties délimitées du corps. La seconde serait un permis limité autorisant une personne possédant moins de deux ans de formation d'irradier une zone délimitée du corps sous la surveillance d'un praticien autorisé.

Le gouvernement américain a établi que les rayons X employés dans les diagnostics médicaux et dentaires constitueraient la principale source humaine de rayonnement atteignant la population des Etats-Unis.

### L'éducation permanente devient obligatoire dans l'état de Washington

L'Association dentaire de l'état de Washington a établi pour ses membres des exigences en matière d'éducation permanente.

Le Colorado est le seul autre état à posséder cette exigence. En outre, les organismes de réglementation professionnelle de trois états exigent des cours d'éducation permanente pour renouveler l'autorisation d'exercer.

L'Association dentaire de l'état de Washington exige un total de 48 heures de cours dentaires. La présence à des conférences, cercles d'étude, cours post-universitaires, réunions scientifiques, les travaux de recherche et les hautes études sont acceptés à cette fin.

terminer sa troisième année. Les plans de la clinique dentaire permanente mûrissent. Elle sera située dans des locaux qui doivent être ajoutés à l'hôpital universitaire et on prévoit qu'elle sera terminée fin 1974 ou début 1975. L'université ne pourra donc pas accepter de classes dentaires complètes avant encore un an ou deux.

### Programme d'études de spécialisation en périodontie

Le Service de périodontologie de l'Université du Manitoba à Winnipeg offre un programme d'études de trois ans. L'enseignement comporte de la recherche et du travail en clinique et conduit à une maîtrise ès Sciences de biologie buccale ainsi qu'à un certificat de périodontie clinique. Ce programme est destiné aux candidats intéressés à faire carrière dans l'enseignement dentaire. Les demandes d'inscription pour septembre 1971 sont reçues dès maintenant.

Pour tout renseignement, écrire à S. M. Borden, Chef du Service de périodontologie, Université du Manitoba, 780 Bannatyne Ave, Winnipeg 3, Man.

### Première classe d'étudiants dentaires à Laval en septembre

Le doyen Gustave Ratté a annoncé que la Section de Chirurgie dentaire de l'Université Laval recevra sa première classe en septembre prochain. L'école a déjà reçu 50 demandes d'admission sans faire aucune publicité. La première classe ne comptera cependant que 12 étudiants.

Le corps professoral dentaire comprendra sept membres la première année et 14 la seconde, a déclaré le Dr Ratté. D'autres professeurs sont en train de poursuivre leur formation au Canada et aux Etats-Unis.

## L'économie

### Pas d'assurance dentaire aux enfants des assistés sociaux

Le Collège des Chirurgiens-Dentistes et l'Association des Chirurgiens-Dentistes du Québec ont tous les deux émis l'opinion qu'il serait illogique de ne pas étendre les soins dentaires à tous les enfants des assistés sociaux parce que les traitements donnés jusqu'à l'âge de sept ans pourraient ensuite être annulés.

Parlant devant la Commission parlementaire des Affaires sociales le 3 février dernier, ils ont fait valoir la nécessité d'une telle mesure.

Le gouvernement québécois a annoncé son intention de défrayer seulement les soins dentaires aux enfants de sept ans ou moins, mais le projet de loi est rédigé de telle façon qu'un plus grand nombre de personnes pourrait être couvert par règlement.

Le ministre des Affaires sociales, M. Claude Castonguay, a souligné que les prévisions du coût de la mesure envisagée étaient nécessairement inexactes et qu'il vaudrait mieux attendre un an ou deux avant d'étendre davantage la couverture des soins dentaires.

Selon une étude, compte tenu du fait que seulement 30 p.c. des parents s'en prévaudraient, l'extension des soins dentaires à tous les enfants de sept ans ou moins toucherait environ 590,000 jeunes et nécessiterait des déboursés de l'ordre de $8.5 millions à $8.7 millions. Avec des données analogues, le coût des soins dentaires accordés aux enfants âgés de huit à 18 ans et appartenant à des familles bénéficiant de l'aide sociale s'élèverait à environ $2,250,000.

M. Castonguay a expliqué que si les coûts se révélaient plus élevés que ceux prévus, ils pourraient mettre en danger plusieurs autres projets envisagés, dont la fluoration de l'eau et la formation du personnel auxiliaire.

## L'enseignement dentaire

### Le Collège de la Saskatchewan entre dans ses nouveaux locaux

Le Collège de Chirurgie dentaire de l'Université de la Saskatchewan a déménagé dans ses nouveaux locaux au début de l'année. On y trouve d'excellentes salles d'enseignement et des laboratoires ainsi qu'une importante superficie réservée aux bureaux et à la recherche.

Une clinique dentaire provisoire de 28 fauteuils se trouve dans le même bâtiment que l'école dentaire. L'immeuble abritera aussi la bibliothèque universitaire des sciences de la santé ainsi que les sections des sciences fondamentales du Collège de Médecine.

La première promotion d'étudiants dentaires de l'université s'apprête à

## Les organismes dentaires

### Le Dr Dorion devient président du Montreal Dental Club

Le Dr E. S. Dorion a été élu président du Montreal Dental Club lors de la soixante-treizième réunion annuelle du Club. Il succède au Dr G. M. Dundass qui a été nommé président honoraire. Le président désigné est le Dr J. Vincelli.

Le bureau est composé des Drs W. Lambert, trésorier; R. G. Jones, historien; H. J. Smart, directeur du Fall Clinic; et J. F. McMullan, secrétaire.

Les autres directeurs élus sont les Drs W. H. Boyles, J. T. Elo, J. F. Giacomelli, P. Guilbault, P. L. Samis et A. J. Schutz.

### Priorité à la prévention et l'éducation selon le Montreal Dental Club

Le Montreal Dental Club a déclaré que la fluoration et l'éducation en hygiène dentaire doivent être les premières priorités dans tout régime provincial d'assurance dentaire au Québec. C'est l'opinion exprimée dans un mémoire soumis le 3 février à la Commission parlementaire des Affaires sociales de l'Assemblée nationale du Québec. La Commission recueillait des témoignages sur la création d'un régime de soins dentaires pour enfants et sur d'autres améliorations pouvant être apportées à l'assurance-maladie au Québec.

Le Montreal Dental Club a reproché à la législation actuelle de couvrir les soins de chirurgie buccale en milieu

## Entente des dentistes du Québec avec le gouvernement

Le Comité de négociation de l'Association des Chirurgiens-Dentistes du Québec et les représentants du gouvernement provincial en sont venus à une entente en ce qui concerne les soins dentaires chirurgicaux en milieu hospitalier dans le cadre de l'assurance-maladie.

Lors d'une assemblée générale spéciale qui a eu lieu à Québec le 6 février, les membres de l'ACDQ ont eu l'occasion d'étudier et de ratifier le projet d'entente. Le document a ensuite été signé le 8 février au nom de l'Association par son président, le Dr Hubert LaBelle.

Les services de chirurgie buccale rendus par un chirurgien-dentiste dans un milieu hospitalier (clinique d'urgence, salle d'opération ou service dentaire) seront rémunérés lorsqu'ils rencontrent l'un ou l'autre des critères suivants:

*Critère A:* Une perturbation d'origine pathologique ou traumatique qui exige des soins dentaires chirurgicaux immédiats.

*Critère B:* Les soins dispensés à un malade hospitalisé et qui complètent le traitement de la condition exigeant l'hospitalisation.

*Critère C:* Les soins dont la dispensation en milieu hospitalier est requise soit par suite de l'état général du malade, soit par leur nature même.

Seuls certains actes, tels l'ablation chirurgicale d'une dent, alvéolectomie, frénectomie, etc, sont sujets à l'application des critères.

### *Reconnaissance et champs d'application*

Le ministre reconnaît l'Association des Chirurgiens-Dentistes du Québec comme seul et unique agent négociateur aux fins de négocier et de conclure toute entente au nom et pour tous les chirurgiens-dentistes inscrits au Collège des Chirurgiens-Dentistes de la Province de Québec à l'exception des chirurgiens-dentistes qui sont des fonctionnaires au sens de la Loi de la fonction publique et des chirurgiens-dentistes détenteurs d'un certificat de spécialiste en chirurgie buccale décerné par le Collège des Chirurgiens-Dentistes de la Province de Québec. Les dispositions de l'entente engagent tous les chirurgiens-dentistes.

### *Mode de rémunération*

Le paiement à l'acte constitue le mode général de rémunération.

### *Retenue syndicale*

L'Association remettra à la Régie une attestation du montant de la cotisation à être prélevé. La Régie retiendra à la source la cotisation syndicale ou le montant égal à celle-ci. La Régie prélèvera sur chaque paiement fait au chirurgien-dentiste un montant égal à 5 p.c. des sommes versées, jusqu'à concurrence du montant attesté.

### *Comité de relevés d'honoraires*

La Régie formera un comité de relevés d'honoraires qui réunira quatre membres dont deux sont désignés par l'Association. Les deux autres membres sont désignés par la Régie; l'un des deux sera chirurgien-dentiste.

### *Consultation*

Le ministre de la Santé a convenu de consulter l'Association préalablement à toute modification de la Loi de l'assurance-maladie et de la Loi de la Régie. Il en est de même préalablement à la modification ou à l'adoption de toute autre loi de nature à affecter spécifiquement la présente entente.

### *Médiation*

Les parties ont convenu que toute mésentente relative à la négociation, au renouvellement ou à la modification d'une entente peut être soumise à une médiation.

### *Durée*

L'entente se termine le 30 juin 1972. L'Association des spécialistes en chirurgie buccale en était déjà arrivé à une entente en décembre 1970.

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hospitaliers, soins qui selon lui, ne devraient pas être prioritaires. La couverture des soins chirurgicaux – surtout des extractions – ne devrait pas être placée au premier plan et devrait autant que possible s'appliquer aux problèmes de croissance et de développement ainsi qu'aux lésions traumatiques.

Le mémoire a mis également le gouvernement provincial en garde contre un régime assurant les soins de restauration et qui se révélerait extrêmement cher et peu efficace en comparaison des mesures éducatives et préventives.

Le Club a recommandé au gouvernement de réviser les objectifs qui seraient réalisés les premiers lors de la mise en place d'une assurance dentaire et d'affecter à d'autres besoins de la santé dentaire les sommes ainsi économisées sur les honoraires et les frais d'hôpitaux.

## Pas de date précise pour les débuts de l'assurance dentaire

Selon le ministre des Affaires sociales, M. Claude Castonguay, le gouvernement du Québec n'a pas encore fixé une date précise pour la mise en vigueur du projet de loi 69 qui couvrira les soins dentaires pour les enfants jusqu'à l'âge de sept ans et la gratuité des médicaments aux assistés sociaux.

Après avoir terminé l'étude du bill à la Commission des Affaires sociales et son adoption à l'Assemblée nationale, il y aura ensuite des négociations à entreprendre avec les groupes de professionnels de la santé concernés. M. Castonguay a souligné que fixer une échéance pourrait laisser entendre "qu'on exerce une pression sur les négociations".

La Régie de l'assurance-maladie doit encore engager les équipes qui auront à administrer les deux nouveaux programmes.

## Gratuité des soins dentaires pour tous les enfants de Terre-Neuve

La gratuité des soins dentaires pour tous les enfants de Terre-Neuve de moins de 12 ans a été annoncée le 2 février lors de la conférence du gouvernement de Terre-Neuve sur le développement provincial.

Le ministre de la Santé, M. Edward Roberts, a déclaré que le projet de soins dentaires deviendrait effectif le plus tôt possible. Il a fait savoir qu'il allait rencontrer les représentants de l'Association Dentaire de Terre-Neuve pour en fixer les détails.

La gratuité des soins dentaires, dont tous les enfants de Terre-Neuve de cinq à huit ans bénéficient déjà depuis l'automne dernier, serait ainsi élargie par le nouveau régime.

## Pas d'avantage fiscal aux corporations de professionnels en CB

Le gouvernement de la Colombie britannique, accédant sans doute à une requête d'Ottawa, vient d'adopter un arrêté ministériel refusant tout avantage fiscal aux corporations de professionnels.

Lorsque le parlement de la Colombie britannique avait adopté la Loi sur les corporations de professionnels l'année

dernière, celle-ci semblait offrir des avantages fiscaux substantiels aux médecins, dentistes ou avocats qui se constitueraient en société.

Le gouvernement provincial remboursera sur demande les frais d'inscription de $70 à ceux qui se sont déjà constitués en société, mais ces membres des professions libérales auront quand même perdu quelque $300 chacun en frais légaux et autres.

## La fluoration

### Québec subventionne la fluoration

Le Ministère des Affaires sociales du Québec a réservé $50,000 pour aider les municipalités qui désirent fluorer leur service d'eau cette année.

L'Office d'information et de publicité du Québec annonce que le gouvernement accorde $5,000 pour l'achat de l'appareil de fluoration, après approbation des plans techniques.

Nicolet, Terrebonne et Châteauguay ont récemment reçu des subventions pour la fluoration. Sept autres demandes sont à l'étude.

### Montréal sera bientôt fluorée

Les Montréalais bénéficieront probablement plus tôt que prévu de la fluoration de l'eau.

Devant l'unanimité que cette mesure a soulevé à la Commission parlementaire des Affaires sociales du 3 février, M. Claude Castonguay s'est dit prêt à entreprendre immédiatement des pourparlers à ce sujet avec les autorités montréalaises.

Actuellement, au Québec, 84 localités seulement d'un total de 952,562 âmes profitent de la fluoration.

Le gouvernement provincial accorde $5,000 aux municipalités qui consentent à installer les appareils nécessaires à la fluoration de l'eau, mais il est possible que ce programme soit modifié à la suite des travaux de la Commission parlementaire. Il est évident que la ville de Montréal bénéficierait d'une plus grande subvention.

### Outremont aussi réclame la fluoration

Le conseil municipal d'Outremont a adopté une résolution demandant au comité exécutif de la Communauté urbaine de Montréal de se servir de son autorité pour forcer la ville de Montréal à fluorer l'eau qu'elle fournit aux banlieues. Puisque la CUM a reçu la juridiction de l'eau, de son contrôle, de son épuration et de son traitement, Outremont estime qu'il est du devoir de cet organisme d'imposer à Montréal la décision de la majorité.

Le président du comité exécutif de la CUM, M. Lucien Saulnier, avait déjà déclaré qu'il recevrait avec attention toutes les propositions qui lui seraient soumises et que si la majorité des villes de banlieues désire la fluoration de l'eau, une proposition serait soumise en conséquence au conseil de la CUM.

C'est à la suite de cette déclaration de M. Saulnier que plusieurs municipalités ont commencé à adopter diverses résolutions favorables à la fluoration. Outrement était la sixième à le faire.

## La recherche

### Un danger dans le cabinet dentaire: les vapeurs de mercure

Le dentiste et l'assistante qui manipulent sans précautions des amalgames au mercure risquent de s'exposer à des concentrations dangereuses de vapeur de mercure. Un article publié dans le numéro d'octobre 1970 du *Journal of the American Dental Association* indique que ce danger peut se produire dans un cabinet dentaire sur sept.

Le cabinet dentaire peut surtout être pollué par le mercure renversé ou le mercure exprimé en mélangeant l'amalgame et qui est alors jeté à terre. Le mercure de ces deux sources s'évapore rapidement à la température de la pièce.

La façon dont est nettoyé le cabinet dentaire joue également un rôle important. Le mercure renversé se recouvre d'une couche oxydée ou d'une couche de saleté qui réduit l'évaporation. Le lavage fréquent des planchers enlève ces revêtements et disperse les taches de mercure, ce qui augmente la superficie couverte de mercure et l'évaporation de celui-ci.

La décontamination des cabinets est difficile mais indispensable. Les taches visibles doivent être supprimées par aspiration à vide. Si le sol n'est pas construit sans fissures, il doit être recouvert d'un nouveau revêtement imperméable remontant de quelques pouces sur la base des murs. Les tapis et moquettes des cabinets contaminés doivent être retirés et détruits. Les dentistes devraient utiliser en permanence des produits supprimant les vapeurs de mercure. Le matériel de nettoyage devrait être réservé au cabinet dentaire. Ce matériel et les filtres de climatisation devraient être remplacés souvent.

### La "fatigue thermique" peut fendiller l'émail

Des chercheurs de l'Université de l'Utah ont découvert que l'émail des dents peut subir une "fatigue thermique" lorsqu'il est soumis au cycle constant chaud-froid qui se produit dans la bouche. Il en résulte alors de minuscules fissures dans la surface de l'émail, qui pourraient retenir des aliments, attirer la carie et augmenter la possibilité de fracture.

Travaillant avec des centaines de dents humaines et de bétail, les chercheurs ont découvert que l'émail est très résistant au cours de la compression thermique qui se produit lorsque la dent est chauffée, comme pendant l'absorption d'une boisson chaude. Mais lorsque la surface de la dent est soumise à de brusques chutes de température durant la consommation d'une substance froide, l'émail a tendance à se contracter et devient plus susceptible de se fendre.

Les chercheurs déclarent que les matériaux de la dent sont relativement de mauvais conducteurs thermiques, parce que la dentine qui se trouve au-dessous de la surface de l'émail n'a pas subi les mêmes changements de température. En se refroidissant, elle conserve ses dimensions premières, et exerce une force de tension sur l'émail extérieur en train de se contracter et qui alors se fissure.

Le pire traitement que des dents puissent subir, ajoutent-ils, est de broyer de la glace. Non seulement sont-elles alors soumises à des tensions thermiques, mais en même temps elles doivent supporter les tensions physiques nécessaires pour écraser la glace.

Les chercheurs signalent aussi que les dents subissent des tensions thermiques lors de la préparations des cavités, et si cette chaleur n'est pas dissipée par un dispositif de refroidissement, les dents peuvent être affaiblies autour de l'obturation.

Les jets à eau froide ou les vaporisateurs à air et eau froide peuvent provoquer de graves variations de température au cours de la préparation de la dent, avec affaiblissement de l'émail environnant. D'autre part l'irrigation à l'eau tiède, réglée à la température du corps, est un bon moyen de supprimer la tension thermique au cours de la préparation.

Selon l'équipe de recherche, les dents portant des restaurations à l'amalgame sont plus sensibles à la tension thermique que les dents saines. Ces dents sont aussi affaiblies par l'étendue de la préparation.

# Dentistry in news

## National Convention

### Endodontic academy announces program

The Canadian Academy of Endodontics will hold a two day meeting during the national convention of the Canadian Dental Association in Ottawa, it has been announced. Scientific sessions have been set for Friday and Saturday, October 1-2.

Allan Krakow, Boston, will speak on paediatric endodontics while Cyril Gaum, also of Boston, will discuss "Diagnostic Perplexities."

Correlation of clinical and histopathological observations of the effect of dental caries on the human pulp is the subject of an address by Marshall D. Peikoff of Winnipeg.

Harvey Wiener, Montreal, will describe the management of endodontic problem cases. Calvin D. Torneck, Toronto, will examine the effect of endodontic procedures on developing incisors while Fred Weinstein, Vancouver, will demonstrate how to use finger pluggers and spreaders in gutta percha filling.

The annual business meeting is scheduled for 2:00 pm, Saturday, October 2.

### Hygienists set three day meeting

Dental hygienists from all parts of Canada are expected in Ottawa, September 29-October 2, when the Canadian Dental Hygienists Association holds its eighth annual meeting at the Skyline Hotel during the CDA national convention.

The meeting will be launched 7:00 pm Wednesday, September 29 with a wine and cheese reception in the CDHA hospitality suite at the Skyline.

The scientific program begins on Thursday morning with orientation sessions and seminars on dental hygiene education, led by CDHA Past President Mrs. Pat Johnson. Also scheduled are important discussions about the Saskatchewan and Prince Edward Island dental manpower studies; the report of the Wells (ad hoc) Committee on Dental Auxiliaries; dental hygiene training in expanded duties at Dalhousie University, Halifax; and the proposed dental hygiene program at Algonquin College.

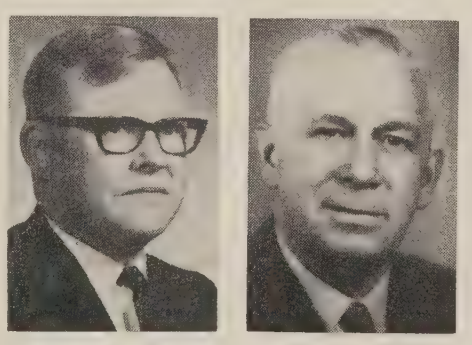
On Saturday morning Miss Helen Mussallem, executive director of the Canadian Nurses Association, will describe trends and changes in nursing duties and education.

Sessions of the board of directors have been set for September 27-29 at the Skyline.

CDHA President Mrs. Sharon French assures that delegates will not be left out of festivities which are being scheduled to offset the work sessions.

Entertainment highlights include a theatre evening at the National Arts Centre on Thursday, September 30, and the CDA President's Party on Friday night. The annual CDHA luncheon is set for Thursday, September 30.

Mrs. Sharon French, president, Canadian Dental Hygienists Association, chats with Mrs. Pat Johnson, CDHA past president, during a recent meeting at CDA Headquarters. Mrs. Johnson will lead seminars and discussions of projected changes in dental hygiene education when the CDHA holds its annual meeting during the CDA national convention in Ottawa, September 29-October 2.



T. M. Curry (l.) director of dental services, Saskatchewan, and R. A. Connor, chief of the Dental Health Division, Department of National Health and Welfare, will discuss current Canadian dental manpower studies at the annual meeting of the Canadian Dental Hygienists Association.

### Dentists, assistants invited to hygienists' program

Members of the Canadian Dental Association and the Canadian Dental Nurses and Assistants Association and dental technicians have been invited to attend the scientific program of the Canadian Dental Hygienists Association convention in Ottawa September 29-October 2. The CDA has extended a reciprocal invitation to delegates from the various auxiliary groups.

Of interest to dentists will be discussions about the Saskatchewan and Prince Edward Island dental manpower projects, the report of the Wells Committee on dental auxiliaries, and a discussion of dental hygiene training in expanded duties at Dalhousie University, Halifax.

All persons attending scientific meetings during the national convention must display their registration badges.

## The Association

### New CDA dental health education film for high school students

*Think About It/Pensez-y* is the bilingual title of a new 16mm film, produced for the Canadian Dental Association by dental undergraduates of the University of Toronto under the direction of fourth year students Ron Bell and Brad Chapple. Assistance was provided by K. W. Davey, chairman of the CDA Council on Public Health and Preventive Dentistry.

This 15 minute coloured film with a musical background is intended for teenage audiences.

The first prints have been received and will be loaned to interested agencies to test student reaction and to determine eventual distribution procedure.

Requests for loan of the prints should be made in writing to the CDA Bureau of Public Information, 234 St. George St, Toronto 180, stating the date of intended use.

### Council approves grouping of specialties

The CDA Council on Education, at its February 10-12 meeting, expressed agreement with the principle of grouping dental specialties.

The council will recommend to the Board of Governors that there be four specialty areas, namely paediatric dentistry, public health dentistry, restorative dentistry and oral medicine/surgery.

The council also decided to appoint a standing committee on specialists and specialization. The new committee's task will be to consider and make recommendations on applications for

North Bay Nugget

Chief Justice
Dalton Wells

# Report envisions expanded duties for supervised auxiliaries

Ottawa is "very much in favour of helping to train dental auxiliaries in cooperation with the provinces," the House of Commons was told in the wake of a government report that recommended a large expansion in the number of duties which all classes of dental auxiliaries may perform.

The report by the Ad Hoc Committee on Dental Auxiliaries, led by Ontario Chief Justice Dalton Wells, was tabled in Parliament February 22.

The 12 member committee, which was established on June 13, 1968, as a sequel to the Royal Commission on Health Services, was set up to study the possible use of such auxiliary personnel as dental assistants, hygienists and technicians in providing better dental care services for Canadians.

Most of the committee's recommendations proposed ways to improve the training and certification of such people. But its report went a step further and recommended that dental care in a form similar to medicare be offered to all Canadians "as soon as possible."

## *Assistants, hygienists*

The report rejects the creation of new auxiliaries, calling instead for the expansion of the permissible duties of dental hygienists and assistants. Those of the chairside assistant should encompass many of the present routine technical tasks of the dental hygienist. Both groups would be trained accordingly.

New duties for dental assistants would include taking impressions for study casts; placing and removing rubber dam and matrix bands; placing temporary restorations; removing dentures; rubber cup prophylaxis; supervising or applying topical anticariogenic agents; and exposing and processing radiographs.

Dental hygienists with the requisite training would be allowed to apply rubber dam; place sedative dressings; take impressions for study casts; repair dentures; place and remove matrix bands; place orthodontic bands; prepare cavities; and place and finish temporary cement, amalgam, silicate or plastic restorations.

## *Technicians, technologists*

Turning to dental technicians, the committee said their duties should be defined in provincial dental acts as including "the fabrication, reproduction and repair of fixed or removable prosthetic appliances, crowns or bridges, as prescribed by the dentist."

Duties of technicians who complete further accredited training should be expanded to include fabrication and fitting of complete dentures or orthodontic bands directly for the public. These technicians, called dental technologists, would perform the additional duties on prescription and under supervision of a dentist.

## *Education, licensure*

The report said that dental assistants should in future be trained in secondary schools and post-secondary institutions. Dental hygiene education should also be transferred to post-secondary institutions, leaving present university programs to become degree courses to provide teaching and supervisory personnel for regular dental assistant and hygiene training programs.

Formal training of dental technicians and technologists should be centered in post-secondary institutions, and apprenticeship training should be phased out, the committee said. The report also suggests shorter upgrading programs, equivalent to one full-time academic year, for present technicians who aspire to become technologists.

The committee condemned British Columbia and Alberta for allowing "persons with dubious qualifications and a record of illegal practice" to become licensed as dental mechanics. It found no support for the claim that this step would reduce costs and increase prosthetic service in rural areas. The report said costs have actually climbed because most mechanics practise in large cities where they must contend with rising overhead costs.

However, the committee believes that the licensing of dental mechanics is probably irreversible. To get around the problem, it would bring them under proposed new legislation governing dental technicians and technologists. Present technicians who wish to become technologists would have to submit to additional training and examination for licensure.

## *Council on Dental Auxiliaries*

Creation of a Canadian Council on Dental Auxiliaries and 10 provincial councils is proposed as a means of fostering uniformity in certification and accreditation of educational and training institutions. The Canadian council would have representatives from its provincial counterparts plus additional members named by the Minister of National Health and Welfare.

Provincial councils would be composed of 11 members–three dental auxiliaries (one each from dental hygiene, dental technicians and technology, and dental assistant boards envisaged under proposed new provincial dental auxiliary acts), three dentists (appointed by the provincial dental association, the provincial dental licensing board and the provincial health department), three laymen appointed by the provincial health minister, a member appointed by the provincial education minister, plus the Minister of Health.

## *Dental care*

The committee urged governments to implement a system of dental care–similar to medicare–to ensure all Canadians have adequate treatment for their teeth.

It calls on governments to build toward this universal dental care system by starting with a national dental program for children. This could be extended year by year until it included all schoolchildren. It would then be extended gradually to include the entire population.

The report suggested that while the national children's program was in its years of expansion, parents should have the option of sending their eligible children to public dental service available under the program or to private practitioners.

The committee called on federal and provincial ministers of health to accept the responsibility for planning, financing and operating dental programs supported by public funds.

### *Team approach*

The manpower problem expected under a public dental care program could be met by upgrading the status of dental auxiliaries and incorporating them in a team approach to dentistry.

Fully-trained dentists would do only the work that they alone were qualified to perform. Other more routine technical tasks would be the responsibility of personnel specifically trained for these tasks.

Federal and provincial governments should devise incentives for dentists to employ the team approach. Dentists should be encouraged to expand dental office space and employ additional numbers of dental auxiliaries either in private practice or public clinics, said the report.

### *Committee members*

Serving on the committee were four private practitioners nominated by the Canadian Dental Association–J. F. Reid, North Vancouver; M. A. Kamienski, Scarborough, Ont; J. G. Bélanger, Montreal; and C. E. Dexter, Halifax.

Other members were: C. W. B. McPhail, Saskatoon (nominated by the Association of Canadian Faculties of Dentistry); A. M. Hunt, Toronto (nominated by the Canadian Society of Public Health Dentists); Mr. Cleve Kidd, former executive vice-president, Canadian Airline Pilots Association (representing the consumer); G. D. W. Cameron, former deputy minister of national health (representing the broad field of public health); Marjorie Jackson, Toronto (representing dental auxiliaries); and Bruce A. McFarlane, professor of sociology, Carleton University, Ottawa.

Ex officio members of the committee were: J. N. Crawford, also a former deputy minister of national health, and R. A. Connor, chief of the Dental Health Division, Department of National Health and Welfare.

recognition of new specialties. The committee will also be asked to advise the Board of Governors, through the Council on Education, on all matters pertaining to specialists and specialization.

Four applications for the recognition of new specialties in dental public health, restorative dentistry, dental radiology and oral pathology are being referred to the new committee.

The council has also recommended that the Canadian Dental Association convene a conference on continuing dental education. The council is ready to assist in organizing such a conference.

### Wells report draws guarded praise

The report of the Ad Hoc Committee on Dental Auxiliaries (Wells report) received conditional approval from the CDA Council on Auxiliary Services at its March 8-9 meeting.

Commending the Wells Committee for its "clear, detailed and progressive report," the council also "agreed in principle with the philosophy of extending the availability of dental health care by the delegation of more duties to formally trained auxiliaries, as proposed in the report."

But in a separate resolution, council members expressed reservations about:

Serial listing of dental assistants' and hygienists' duties in provincial dental acts;

Cavity preparation by auxiliaries;

Membership in proposed Canadian and provincial councils on dental auxiliaries;

Duties of the Canadian Council on Dental Auxiliaries;

The financing of "Dental care in its broadest sense" for all Canadians;

Registration of Canadian Forces dental therapists as dental hygienists;

Enactment of provincial dental auxiliary acts which are separate from dental acts; and

The possibility that Recommendation 4 may be taken out of context. This recommendation proposes "that those dental technicians who have completed an accredited educational and training program may, on prescription of a dentist, perform the additional duties of fabrication and fitting of complete dentures and/or the fabrication and fitting of orthodontic bands directly for the public."

Noting the emergence of several patterns in different provinces for services to be performed by dental assistants and dental hygienists, the council urged provincial corporate members to maintain a common minimum standard for the educational programs and service patterns of these auxiliaries so that the advantages of national co-ordination and certification might be realized.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on February 28, 1971:

*Fixed Income Fund* $11.567;

*Common Stock Fund* $22.855.

Total assets (market value) of the plan were $9,504,541.63.

The following portfolio purchases and sales occurred during the preceding month: bought 6,000 shares American Hospital Supply, 4,000 shares Aquitaine Ltd and 4,000 shares Jim Walter Corp; sold 5,060 shares Boise Cascade Corp.

Section 79B of the Income Tax Act permits tax free contributions of up to 20 per cent of earned income or $2,500, whichever is less, to a personal retirement savings program.

The Royal Trust Company, trustee of the CDA Retirement Savings Plan, offers two separate investment media: a fixed income fund and a common stock fund. Contributions may be allocated wholly or partly to the funds of the contributor's choice. Transfers between funds are allowed without penalty.

The fixed income fund, confined to guaranteed government bonds, other guaranteed fixed income securities, debentures, preferred shares and other fixed income securities, offers excellent income with maximum security. The common stock fund, comprising Canadian and carefully selected American and other foreign stocks, has capital growth as its main objective.

No charges or commissions are payable on joining or withdrawing from the plan.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Dental Education

### Saskatchewan college moves to new quarters

The College of Dentistry, University of Saskatchewan, moved into new quarters at the beginning of this year. The new premises provide good teaching and preclinical laboratory facilities as well as much needed office and research laboratory space.

A 28 chair temporary dental clinic is located in the building housing the dental school. The same building will also include space for the university's health sciences library and the basic science departments of the College of Medicine.

Saskatchewan's first dental class is approaching the end of its third year of studies. Meanwhile, plans for a permanent dental clinic are well advanced. This building program is related to the

construction of a large addition to the university hospital. Occupancy is tentatively scheduled for late 1974 or early 1975. Accordingly, it will be a year or two before the university can admit full dental classes.

### Laval University's first class this September

The Section de Chirurgie Dentaire at Quebec's Laval University will take in its first dental students this September, Dean Gustave Ratté has announced. The school has already received 50 applications without any publicity, but the first class will be limited to 12 students.

The dental teaching staff will number seven in the first year and 14 in the second, Doctor Ratté said. Some prospective teachers are now taking graduate training elsewhere in Canada and the United States.

### Western University welcomes Alberta scientist as visiting professor

N. R. Thomas, professor of oral biology at the University of Alberta's dental faculty, attended the University of Western Ontario's Faculty of Dentistry in February as a "Medical Research Council" visiting professor.

While at UWO, Doctor Thomas delivered several lectures and conducted seminars in oral biology. A "traditional" public lecture entitled "The Thousand Natural Shocks" formed part of his commitment while in London.

The purpose of the visiting professor scheme is to exchange opinions and research findings between various Canadian dental faculties.

### Professor Pritchard visits University of Alberta

J. J. Pritchard, professor of anatomy at Queen's University, Belfast, visited the University of Alberta's dental faculty March 1.

Professor Pritchard is a noted research worker and authority on bone growth and bone and tendon repair. He is past president of the Anatomical Society of Great Britain and Ireland.

In addition to conducting a staff seminar entitled "The Scope of Anatomy in the Dental Curriculum," Professor Pritchard also delivered a public lecture on "Bone Repair."

### Educational opportunities

*Continuing education*

Openings are still available in the paedodontic short course offered by the Faculty of Dentistry, University of Toronto, May 5-7.

The program includes two lectures by G. B. Winter of the Eastman Dental Hospital, London, England, and a seminar on the treatment of traumatized teeth. Also scheduled are paedodontic ward rounds with case presentations and discussion of clinical and radiographic examination of children, preventive aspects of paedodontics and orthodontics, operative procedures and the use of stainless steel materials for primary teeth, and oral surgery for children.

The course will be presented by the staff of the Department of Paedodontics under the chairmanship of Professor K. W. Davey.

Applications, including cheques for tuition ($100) made payable to the University of Toronto, should be sent immediately to G. S. Beagrie, Assistant Director, Division of Postgraduate Dental Education, Faculty of Dentistry, University of Toronto, 124 Edward St, Toronto 101, Ont.

## ACADEMY OF GENERAL PRACTICE AIDS CONTINUING EDUCATION

*Continuing education and licensure was a major discussion topic when secretaries of provincial corporate members of the Canadian Dental Association held their annual conference January 11-12. G. H. Craig, Belleville, Ont, told the secretaries what the Academy of General Dentistry is doing to improve standards of dental practice in North America. Herewith a summary of Doctor Craig's remarks:*

The Academy of General Dentistry was founded in Chicago in 1952 to promote continuing education for dentists in general practice. The academy now has 5,000 members in the United States, about 200 in Ontario, and some in most other Canadian provinces. Canada is divided into two divisions, each having representation equal to that of individual American state units.

Though it has its head office in Chicago and holds its annual meeting at the time of the Chicago Dental Society Midwinter Meeting in February, the Academy is international in scope. The organization is composed of local study groups which develop local clinical presentations. These groups, in turn, feed to larger regional units which usually have an annual clinic day.

Membership is contingent on the completion of a specified number of hours of formal continuing education. Fellowships are conferred on dentists who complete 500 hours of work. Individual members' academic achievement is recorded by a central validation system. This could be important in Canada in view of the consideration being given to continuing education as a requirement for maintenance of the licence to practise.

Other membership services include the *Journal of the Academy of Dentistry* and a continent-wide analysis of dental prepayment plans.

Further inquiries and requests for application forms should be directed to G. H. Craig, AGD Regional Vice-President and Director for Eastern Canada, 122 Bleecker Ave, Belleville, Ont.

## Dental Organizations

### Doctor Diefenbacher new president of the Royal College of Dental Surgeons of Ontario

Kitchener dentist N. L. Diefenbacher was recently installed as president of the Royal College of Dental Surgeons of Ontario, succeeding H. M. Jolley of Toronto. A 1953 graduate of the University of Toronto, Doctor Diefenbacher is a former president of the Waterloo Wellington Dental Society.

G. E. Burgman, Niagara Falls, was elected vice-president. K. F. Pownall, Toronto, continues as registrar-secretary-treasurer.

Members of the Board are: J. R. Callingham, Ottawa; P. P. Zakarow, Oshawa; D. I. Lecocq, Thunder Bay; I. A. Arshawsky, Toronto; H. M. Jolley, Toronto; D. A. Cheetham, Owen Sound; R. P. McCutcheon, London; D. B. McAdam, Toronto; and W. J. Dunn, London.

N. L. Diefenbacher

## Economics

### No tax advantage for professional corporations in BC

British Columbia's government, apparently yielding to pressure from Ottawa, recently passed a cabinet order that denies professional corporations any tax advantage.

When the Professional Corporations Act was passed by the BC legislature last year, it appeared to offer a substantial tax break for professionals such as physicians, dentists and lawyers who incorporated themselves (see report on p 242, June 1970 Journal).

The provincial government will on application refund the registration fee of $70 to professionals who incorporated. But these professionals will still be out of pocket for an estimated $300 each in legal fees and other expenses.

### Quebec association proposals would aid children, welfare recipients

The Quebec Dental Association has urged the provincial government to institute compulsory fluoridation and expand dental health education in the province. The request was contained in a brief submitted in January to the Social Affairs Committee of the Quebec National Assembly. The committee is studying the addition of a children's dental care program and other possible extensions to Quebec's medicare scheme.

The brief warned that dental coverage should not be confined to reparative treatment alone. Instead, the association recommended a system of coverage which would emphasize dental health education, preventive care and fluoridation.

The QDSA also praised a recent government decision to provide free drugs to all Quebec welfare recipients. But it termed as "indefensible" the fact that welfare recipients must pay for dental care when they can receive free benefits from all other health professionals. The brief asked that the committee press the government to rectify this patent injustice.

### Montreal club calls for prevention, health education priorities

The Montreal Dental Club has called for fluoridation and dental health education as "top priorities" in any province-wide dental health insurance plan in Quebec. The view was contained in a brief submitted February 3 to the Social Affairs Committee of the Quebec National Assembly. The committee held hearings on the addition of a children's dental care program and other possible extensions to Quebec's medical insurance program.

The Montreal club criticized the coverage of in-hospital oral surgery under existing legislation which it termed a misplaced priority. Surgical coverage–especially tooth extractions–should have a very low priority and should be directed as much as possible toward growth and development problems and traumatic injuries, said the brief.

The statement also warned the provincial government not to embark on a scheme of restorative dentistry which would prove "frustratingly expensive and non-effective" in comparison to educational and preventive measures.

It urged the government to reassess its priorities in the implementation of a dental health insurance plan and shift resultant savings in fees and hospital costs to other aspects of dental health.

### Quebec association concludes oral surgery accord

The Quebec Dental Surgeons Association has signed a collective agreement with the provincial government regarding in-hospital oral surgery. Under the February 8 pact, a dentist will be paid for service rendered in a hospital if:

–The patient needs immediate oral surgery;

–Oral surgery completes the treatment for which the patient was admitted to hospital; or

–The patient's health or the dental treatment require its performance in a hospital.

The agreement, which runs until June 30, 1972, recognizes the QDSA as negotiating agent for all private practitioners except certified specialists in oral surgery who signed a separate agreement last December.

Payment by the Quebec Health Insurance Commission will be based on fee-for-service, with an initial 5 per cent pro-rata deduction.

The commission will also set up a four member fee review board—two to be nominated by the QDSA, the other two by the commission. One of the two members nominated by the commission will be a dentist.

### Free dental care proposed for all Newfoundland children

Free dental care for all Newfoundland children under the age of 12 was predicted February 2 at the Newfoundland government's conference on provincial development.

Health Minister Edward Roberts said the dental care program would become effective "as quickly as possible." He said he will meet with representatives of the Newfoundland Dental Association to work out the details.

If implemented, the proposal would extend a program of free dental care for all Newfoundland children between five and eight, which began last fall.

### Medicare to cost Ottawa $550 million

Medicare for all Canadians will cost the federal treasury $550 million in the coming fiscal year, the first that all 10 provinces have been enrolled.

The total cost for medical care insurance will be about double that amount–since Ottawa pays half the national average costs of medicare.

Although Ottawa began contributing to approved provincial medical insurance schemes on July 1, 1968, it was not until the first of this year that New Brunswick–the last province to join–introduced medicare.

The $550 million is the amount the federal government expects to contribute to medicare between April 1, 1971, and March 31, 1972. It is an increase of $150 million over the medicare spending of the federal government in the fiscal year that ended March 31–a year in which three provinces were in the scheme for only a portion of the 12 months.

Quebec joined on November 1, Prince Edward Island on December 1, and New Brunswick in January.

In fiscal 1971-72, Ottawa's contribution toward the cost of compulsory hospital insurance will exceed medicare costs by more than $250 million.

Estimated costs for all federal spending for health insurance will total $811.6 million.

## Fluoridation

### Fluoride cuts dental costs in half

Fluoridated water has cut costs of dental care almost in half, a survey of 1,300 children in the Toronto suburb of North York has revealed.

Fluoride was first introduced into Toronto water supplies on September 4, 1963.

A study of 250 five year old children in the borough showed that costs of dental care for those born 20 months before fluoridation started in Toronto were about $63 per child, according to D. W. Lewis of the Department of Dental Public Health at the University of Toronto's Faculty of Dentistry.

Costs for 304 five year old children born 14 months after fluoridation were about $34.

The costs were estimated by applying the Ontario Dental Association's schedule.

### Quebec supplies money for fluoridation

Quebec's Department of Social Affairs has earmarked $50,000 to aid municipalities that wish to fluoridate their water this year.

An announcement from the Quebec Information Office says the government grants $5,000 toward each purchase of fluoridation equipment after approval of the relevant technical plans.

Communities which have received recent fluoridation grants include Nicolet, Terrebonne and Châteauguay. Seven other applications are under consideration.

## Research

### Mercury vapour: a hazard in the dental office

Dentists and dental assistants who handle mercury amalgams improperly may expose themselves to potentially harmful concentrations of mercury vapour. One of seven dentists and their assistants are likely to be over-exposed, according to a report in the October 1970 *Journal of the American Dental Association.*

Major causes of dental office contamination are spillage and mercury expressed from freshly mixed amalgam which is then deliberately thrown to the floor. Mercury from either source vaporizes readily at room temperature.

Second in importance is the method of cleaning the dental office. Spilled mercury develops an oxidized coating or becomes coated with dirt thereby reducing vaporization. Frequent mopping disturbs these coatings and disperses localized spillage, significantly increasing mercury surface area and vaporization.

Decontamination of offices is difficult but essential. Visible spillage should be eliminated by vacuum suction. If the office floor is not of crack-free construction a new impervious crack-free covering extending up the wall a few inches should be installed. Rugs, carpets and mats from contaminated offices should be removed and destroyed. Mercury vapour suppressants should be used routinely by all dentists. Cleaning equipment should be confined to the dental office and should be replaced often. So should air conditioner filters.

### Facial hypoplasia: a new syndrome

Washington scientists studying children with speech or growth problems may have discovered a new cluster of congenital face, skull and other deficiencies. The similarity and the pattern of anomalies in each of the children points to a new syndrome which has a common origin. Although heredity may be a factor in the facial hypoplasia syndrome, it is possible that disturbances in early pregnancy could produce many of the idiosyncracies of the defect.

All the children seemed normal at birth, but had many infections, including pneumonia, in infancy. All had poor appetites. As infants they had trouble in feeding characterized by nasal spill or loss of food through the nose.

Perhaps this symptom may lead other parents, dentists and physicians to earlier investigation and treatment of this problem in the future, according to the investigators.

Each child was slow to talk and had nasal speech and articulation problems due to submucous cleft palates. Since such clefts can only be felt, not seen, they are often overlooked in infancy.

Each patient exhibited a marked consistent retardation of physical growth from early infancy, and the bone age remained behind chronological age in every case.

All faces had small receding chins, small low cheekbones and severe open bite. Defects of the extremities were also common.

In sensory tests, at least 10 times the normal concentrations of sweet, sour, bitter and salty substances were required for recognition by the children, and they had difficulty in detecting various pleasant and unpleasant odours. The ability to feel was also impaired in mouth and hand.

## Awards and Appointments

Honoured by the Saskatchewan Hospital Association is **H. S. Jamieson** of Moosomin, who received the Smith-Walshaw Memorial Award and life membership from the hospital association. The award recognizes contributions and achievements in administrative aspects of hospital work. Doctor Jamieson, a former president of the Saskatchewan Hospital Association, served as director of the Canadian Hospital Association 1966-69. He is also a commissioner and vice-chairman of the Alcoholism and Drug Addiction Commission of Saskatchewan.

G. K. Clarke

Hamilton, Ont, dentist, **G. K. Clarke,** was recently elected president of the Ontario Public Health Association. Doctor Clarke is currently serving with the Hamilton health department.

Past CDA President **W. P. Munsie,** Vancouver, became president of the British Columbia Lions of the Western Football Conference February 17.

W. P. Munsie

D. S. Davis

**D. S. Davis** is the first dentist to be elected mayor of the city of Stratford. A 1950 graduate of the University of Toronto, Doctor Davis started his dental career with the Department of National Health and Welfare, Indian Affairs Branch, treating Eskimos and Indians in the James Bay and Hudson Bay areas. Since his return in September 1950, he has been in practice in Stratford. He was elected to the Stratford city council in 1968, becoming chairman of the recreation and public service committee. Upon re-election in 1970, Doctor Davis served as deputy mayor and chairman of the capital finance committee. Last December he was acclaimed mayor for the 1971-72 term.

## Deaths

Barrett, R. 70. Charlottetown, PEI. Dalhousie University, 1927. 18-1-71.

Brown, Reuben. 68. Toronto. University of Toronto, 1925. 14-2-71. Survived by Ruth (wife); Dr. Alan and Ralph (sons); Abbey and Morris (brothers); Mrs. H. Shulman (sister); and six grandchildren.

Copeland, Saul. 69. Toronto. University of Toronto, 1926. 6-2-71. Survived by Belle (wife); Dwight (son); Mrs. B. Margolis (daughter); Sam Caplan (brother); Effa Daniels and Evelyn Sail (sisters); and Deena (granddaughter).

Eades, Ernest Edward. 61. Moose Jaw, Sask. McGill University, 1947. 25-1-71. Survived by Irene (wife). Associate member CDA.

Goldenberg, Marvell. 70. Montreal. McGill University, 1925. December 1970.

Rothwell, John. St. Petersburg, Fla. Emory University Dental School, Atlanta, Ga. 23-8-70 at Bayfront Medical Centre, St. Petersburg, Fla. Survived by Kathrin (wife); Dr. Harry, Sr. (father); and Dr. Harry, Jr. (brother).

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# Proposals for specialization in dentistry

**Council on Education**

The Canadian Dental Association has expended a great deal of effort over a number of years in an attempt to develop a policy bearing on the recognition of specialties in dentistry. This effort, through no fault of those involved, has not been very productive in terms of policy development, but it has been singularly productive in gathering background information and opinion bearing on the topic. The task of trying to develop a policy is still going on, and at the meeting of the Board of Governors of the CDA in July 1970 responsibility for this task was assigned to the Council on Education. It cannot be said that the Council was overwhelmingly enthusiastic about having been assigned this unenviable task. It is assumed that the rationale for the decision on the part of the Board was not on the basis that the Council on Education is possessed of any greater expertise than any other group in the CDA with respect to the practice of specialties, but rather that the Council on Education should be the most competent single group within the CDA to recommend on the all-important academic credibility of programs, either in existence or proposed, for the education and training of specialists. The Council has already recommended standards for approval of education programs for specialists, and is required through its terms of reference to serve as the accrediting agency for such programs as are, or may be, established in Canadian dental schools.

The present CDA terms of reference on specialization deal basically with criteria to be employed to determine whether or not any given area of dentistry can qualify as a specialty. Current regulations require that the area involved must meet the following four criteria pertaining to educational requirements for specialist:[1]

1. The advanced training must include a knowledge of the basic sciences related to dentistry well in excess of that normally accruing from the undergraduate program of dentistry.

2. The advanced training must include the acquisition of a body of clinical knowledge and expertness significantly beyond the knowledge and skill normally accruing from an undergraduate program in dentistry.

3. The advanced training can be made available at approved universities, dental schools, teaching hospitals or other institutions, and where a course or courses have been accredited or are eligible for accreditation by the Council on Education of the Canadian Dental Association.

4. The course of advanced training must lead to a diploma, degree or equivalent recognition attesting to the successful completion of the approved course, and is a program consisting of a minimum of two academic years' duration.

Not stated in these requirements is the one overriding qualification that must be met before any other measure is applied, namely, that a public need for the specialty can be adequately demonstrated.

In addition to this obvious and highly significant deficiency, current measures also do not meet another major problem relating to the declaration of specialties which should be of great concern to the profession. The problem is simply that as more and more areas spin off from the main stream of dentistry and become specialties by managing to meet current minimum qualifications, the more the profession will become splintered. In the opinion of the Council, this has already gone too far, and threatens to become a far greater problem unless steps can be taken to stop it.

In the development of policy, two major problems are involved, the first concerning the development of one which will avoid splintering of the dental profession, and the second pertaining to the actual identification of the areas of dentistry which should be declared specialties. Having accepted the responsibility for formulating and recommending policies on these matters to the Board, the Council on Education will try in the first instance to devote itself to the larger and more serious problem. Once a policy is agreed upon which will resolve the problem of splintering, the second matter (that of deciding which specific areas of dentistry shall be declared specialties) will become simpler to resolve.

## Public need

First, a key question concerning this whole matter, that should be considered before proceeding, is whether or not dental specialties are necessary at all. It is assumed that there is agreement that the basic and fundamental objective of the dental profession, and indeed the only reason for its existence, is to serve the best interests of public welfare. Meeting this same major overriding objective should also be the primary justification for establishing specialties in dentistry. If the establishment of specialties does not meet a public need in some manner that cannot be met otherwise, there should be no specialties.

Perhaps the best indication that this primary objective of the profession is somehow being met through specialization is the fact that specialties in dentistry have existed for a long time, and a large number of countries in the world recognize them. It seems reasonable to assume that they have therefore served the public welfare in a beneficial way and are necessary.

If this assumption is correct and specialties are going to continue to be with us, it seems logical that they should be established only in those areas where it is clear that the growth of knowledge has been such that the total body of knowledge pertaining to the specific area is of sufficient magnitude and complexity that at least two years of postgraduate education are required in order to become completely competent in the field. Dental knowledge is growing, as indeed it must if the profession is to continue to exist, and such growth inevitably leads to the development of specialists with knowledge and skills beyond those of general practitioners. The problem is to develop a system of recognizing such individuals where justified, but without an uncontrolled proliferation which would not be in the best interests of either the public or the profession. It has been suggested that in some instances specialties were recognized because no good reason could be found for refusing an application, rather than because it was considered in the best interests of the public to establish a new special area of practice.[2]

It seems then that specialties in dentistry are here to stay; so the problems as outlined remain. As has been mentioned several times already, the problem of splintering or subdividing the body of knowledge that constitutes dentistry is the major one related to the development of a policy on specialization, and it will be examined in some detail below. First, however, it might be useful to briefly review the practice in other parts of the world.

## International patterns

A recent report on specialization in dentistry on an international basis indicates that 15 individual specialties in dentistry were recognized in some 26 countries of the world, with only one country (East Africa-Kenya) recognizing all 15.[2] The most specialties that any other country recognized was eight, and the average number recognized was five. The two areas most commonly designated as specialty areas throughout the world are orthodontics and oral surgery. Next, in terms of frequent recognition, were periodontics, paedodontics and prosthodontics, with other areas less commonly considered specialties.

Opinions as to which areas of dentistry should be designated as specialties varied from country to country, and ranged from one (specialist in dentistry) to a limited number (each with subdivisions) to any number in which superior competence could be claimed by the dentist.

It seems obvious that no international pattern exists that might serve as a guide for the development of a Canadian policy.

## Problems of proliferation

Three of the most serious aspects of this problem are set out below. There may be others; but if proliferation is allowed to continue, these alone could create serious difficulty for the Canadian Dental Association.

The first problem is large and complex and relates to an aspect of modern society that cuts across all boundaries and gives educators and others a great deal of concern. This pertains to the rapid development of new knowledge and new skills and, what is more important, the phasing out of old knowledge and old skills. The problem pertains to what to do with individuals whose jobs or knowledge or skills are no longer needed. How can they be retrained to continue to make a contribution to the advancement of society? For a general practitioner in dentistry, this is not a great problem since opportunities do exist and are growing for him to bring himself up to date with new knowledge. He can very easily change his clinical orientation within his own practice. For the specialist, however, no such option is available. Thus, if a need for a given clinical specialty skill were to decline or disappear, we could be faced with the prospect of certain specialty groups devoting increasing energy to the justification of their continuance as specialty groups even when it may not be in the best interests of the public to do so. One answer to this problem is to provide for re-training of specialists just as is happening in other areas, and to provide for mobility between groups as inclination and need may dictate. Such mobility is almost impossible under the present system of developing isolated specialties.

A second problem, not necessarily caused by specialty proliferation but certainly enhanced by it, is the problem of communication between professional groups. The desirable exchange of information, ideas and knowledge between dentists, all working toward the same goal, is hindered – not helped – by the fractionation resulting from specialty groups splitting off the main stream of dental service. We should develop a policy that will help rather than harm the transfer of such information.

Finally, proliferation of specialties will eventually result in loss of credibility with other health professionals, with government and private administrators and with university authorities. Furthermore, proliferation will degrade the status of general practitioners when it is extremely important that the image of general practice be enhanced and that the dentists of primary patient contact continue to enjoy the prestige of well-qualified professional individuals.

The problem of permitting specialties to develop where it seems desirable that this should happen, of avoiding unnecessary and undesirable proliferation, of developing a system to provide specialists with "mobility," and of enhancing communication can best be resolved by some form of grouping of present and future specialty areas in dentistry. In fact, there appears to be no other solution.

## Grouping of specialties

A number of the advantages to be gained by combining the present and future specialties into groups are obvious. The knowledge base upon which a number of the present specialties have been built now overlaps to a highly significant degree, and this overlapping will continue to increase in magnitude. Such spreading of the base of

basic knowledge offers an excellent educational opportunity for combined teaching to students in various specialty programs, a practice already current in some schools. Combined education develops understanding and respect for the knowledge of one's specialist colleagues and encourages collaboration. Further, as the clinical sphere of knowledge grows in scope, it seems possible that aspects of clinical training for the various specialists could also overlap to a greater degree than at present. Such an approach may lead to more efforts in developing an "interdisciplinary" approach to common clinical problems.

Grouping will obviously lead toward better communication between specialties, and between specialties and the profession at large. Splintering tends toward replication of administrative structure which hinders exchange of information and knowledge between all interested persons. Fewer secretariats, each with more constituents, should ease the problem considerably.

Finally, the development of fewer but broader-based specialty groups will enhance the prestige of the profession in the eyes of those outside dentistry and lead to a better understanding by them of the nature of specialist services in dentistry.

Indeed, the grouping of various specialties under common titular umbrellas seems so proper and logical that one wonders why it has not been done long ago. The Canadian Dental Association and others have tried to do it, but without success.

Failure has been due to a number of factors, many reflecting self-interest. Some present specialties have demonstrated a profound reluctance and even antagonism toward accepting any change in their traditional status. This has probably been the greatest obstacle to grouping. In addition, several other interested groups have expressed a justifiable desire to be recognized. If the Canadian Dental Association were to accept all pending applications for the establishment of new specialties, Canada would have 10 dental specialties – not a world record but well on the way to equalling it.

Another frustrating obstacle to grouping is simply semantics. This problem was ably discussed by Doctor Harold Hillenbrand at a Conference on Specialization in 1960. Without reaching any firm proposals to resolve the problem, he suggested that four criteria should govern the choice of words to describe a specialty or specialty area. He proposed that:

1. The definition or description should not be devised with the intention of excluding the general practitioner from the field since he, by law, is entitled to perform all of the operations which fall within the scope of any special area.

2. All definitions or descriptions should arise from a common initial statement such as "This special area of dental practice shall involve . . ." in order to find an initial statement which will be useful to all of the areas and compel a uniform initial attitude toward the formulation of definitions and descriptions.

3. The definition should attempt to include those elements by which a dentist recognizes the area, and not the hopes, ideals and status problems of the area itself.

4. The definition should be developed in the context of dental practice, for it will derive meaning and connotation from this context. It is just as impossible to develop a definition for a special area which will stand completely alone as it is for a dentist in a special area not to practise within the context of dental practice. All specialists of dentistry are first dentists, then specialists, and the definition of special areas must acknowledge this relationship.

It should be emphasized that the nomenclature involved is basically for the benefit of the profession. Its purpose is to identify specially qualified persons to colleagues and not to the public. The latter approach tends to encourage the public to engage in self-diagnosis and treatment, which is undesirable.

Recognizing that this problem must be resolved, and since in the Council's opinion the long-range advantages of grouping appear to far outweigh the disadvantages, the Council on Education will recommend acceptance of the principle of grouping specialties in dentistry.

## Recommendation concerning grouping

Once the principle of grouping is accepted, the problem of how to do it remains. This involves the development of a simple, clear mechanism that implies no loss of "face" for established groups, but provides opportunities for the development and growth of new and future specialty groups. The system should also encourage better communication between the specialties and between them and the profession at large, thereby permitting development of logical educational programs and possible professional movement between specialties within groups.

The recommendation advanced in this statement appears, in the Council's judgement, logical and fulfils the criteria described in the preceding paragraph. It links together specialty areas with a common basic knowledge base and involves the declaration of four specialty areas, with a varying number of present or future specialties under the area title.

This type of grouping will create no problems for schools in developing educational programs. Some problems of semantics may remain, but these will diminish with time. It is worth noting that the problem of semantics appears to be non-existent in medicine which has almost 30 specialties grouped under the two broad titles of "physicians" and "surgeons."

## Recommendations

1. It is recommended that the Board of Governors of the Canadian Dental Association agree to the principle of grouping specialties in dentistry.

2. It is recommended that the pattern of grouping of specialties in Canada be as follows:

*Oral Medicine/Surgery* – embracing oral diagnosis,* oral medicine,* oral pathology,† oral surgery,‡ periodontics,‡ radiology.† Knowledge base: pathology.

*Paediatric Dentistry* – embracing orthodontics,‡ paedodontics.‡ Knowledge base: developmental biology.

*Public Health Dentistry* – embracing biostatistics,* dental public health,† epidemiology.* Knowledge base: social, preventive and community dentistry.

*Restorative Dentistry* — embracing endodontics,‡ prosthodontics,‡ operative dentistry.† Knowledge base: occlusal physiology.

The Council supports these recommendations with the following resolutions:

*Resolved* that the Council on Education approves the principle of grouping of specialties in dentistry;

*Resolved* that the Council on Education recommends to the CDA Board of Governors that approval be given to the principle of grouping of specialties;

*Resolved* that the Council on Education recommend to the CDA Board of Governors that the specialty areas in Canada be four in number, namely: Paediatric Dentistry, Public Health Dentistry, Restorative Dentistry and Oral Medicine/Surgery.

*For illustration only. Not now recognized as a specialty.

†Application for recognition as a specialty pending.

‡Specialty recognized by the CDA.

1. Canadian Dental Association. Transactions 1969. Report of Council on Education, Appendix A, p 42.

2. Fédération Dentaire Internationale. Commission on Dental Practice. Report on specialization in dentistry. October 1969.

# Cause and prevention of lip cancer

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*This analysis of recent incidence rates shows that the major cause of lip cancer is accumulated irradiation by ultraviolet light from the sun in individuals deficient in melanin pigment. Sun-screening ointments provide the best protection and should be used by white males with outdoor occupations, especially in the Prairie and Atlantic provinces which have a high lip cancer incidence.*

*La présente analyse des taux d'incidence révèle que la principale cause du cancer des lèvres est l'exposition prolongée aux rayons ultraviolets en provenance de la lumière solaire chez des individus présentant une carence de mélanine. Les onguents solaires constituent la meilleure protection et devraient être employés par les hommes de race blanche travaillant au grand air, surtout dans les Prairies et les Provinces atlantiques où l'incidence du cancer des lèvres est élevée.*

Many factors have been blamed for cancer of the vermilion border of the lip. They include wind, dust, dryness[1-4] and sunlight;[1-12] residence in rural areas,[3, 12, 13] especially at low latitudes;[3, 4, 7, 9, 11] and outdoor occupations[4, 9, 10] such as farming.[4, 10, 11, 14, 15] Marked age and sex differences have been observed.[1, 3, 7-16] People with fair, ruddy complexions[2, 10, 11] and protruding lower lips[1, 11] appear to be susceptible to lip cancer. Diseases that have been associated with lip cancer are hyperkeratosis,[2, 3] leucoplakia,[10] chronic actinic cheilitis,[10] xeroderma pigmentosum,[2] skin cancer,[3, 4, 17] intra-oral cancer,[12] syphilis,[4, 7, 18-20] herpes simplex[15, 21] and thermal burns.[11] Pipe smoking has been especially blamed.[4, 14, 20, 22-24]

Clinical impression, hitherto the principal basis for implicating these factors, is sometimes reinforced by comparing the victims with patients who are free of lip cancer. Such contrasts are rarely valid because the control patients often differ in other respects from those with the disease. In recent years, however, actual incidence rates for lip cancer have become available, and these can be used to evaluate the relative importance of the various factors.

## Factors and incidence

*Age* — The disease has long been associated with older people. Recent Canadian, American and Scandinavian incidence rates show that nine of 10 lip cancer patients are at least 45 years old and half are 65 or older (Table 1).[12, 25-28]

The influence of age may be direct or indirect — direct, in that the tissue becomes more susceptible to malignant transformation; indirect, in that the patient ages during years of exposure to environmental carcinogens. Comment on which choice appears more valid

follows the consideration of other suspected carcinogenic factors.

*Sex* — Lip cancer is predominantly a disease of men. An excess of males is fairly consistent in various parts of the world (Table 2);[16] but male lip cancer incidence varies considerably from region to region, whereas female incidence is relatively low and constant.[16] Regions with a high incidence of male lip cancer also have a higher percentage of males.

As with age, the effect of sex may be direct or indirect. Direct tissue alteration may be associated with the reduction in sex hormones at the climacteric. Differences in the habits and working conditions of men and women may have an indirect effect.

*Residence* — In Canada's provinces, male lip cancer incidence correlates significantly and positively with the percentage of men who reside in rural areas.[13] When separated according to rural and urban areas, the rates for the rural residents are consistently higher (Table 3).[12, 29, 30]

*Occupation* — Men working in outdoor occupations are more prone to develop lip cancer.[4, 9, 10] Farmers predominate among outdoor workers afflicted by the disease.[4, 10, 11, 14, 15]

*Latitude* — Men living in the southern United States seem more susceptible to lip cancer than those residing in the north.[3, 4, 7, 9, 11] Table 4 indicates that men in the south have twice as many lip cancers as those in the north.[12, 31]

*Atmosphere* — The dry atmosphere, wind and dust, which are common in the farming areas of the southern United States, have also been implicated.[1-4] On the other hand, smoke accumulating over urban areas blocks most of the ultraviolet light from the sun.[32]

*Sunlight* — The differences attributed to outdoor occupation and residence — especially in the south where there is considerably more exposure to ultraviolet light — support the observations that sunlight is an important factor.[1-12]

*Burns* — Cancers of the skin and lip have occurred in areas subjected to prolonged thermal burns.[2] Burns of the lip are most likely due to the sun or to pipes. Though burns from pipes were more apt to occur when clay pipes were used,[11] changes in the lips were not related to the temperature of the stem of pipes.[33]

*Pipes* — Although many patients with lip cancer are also pipe smokers (Table 5), the connection is far from clear.[4, 14, 20, 22-24] According to an Advisory Committee to the US Surgeon General, "the relationship of the smoking of pipes to the development of cancer of the lip appears to be established."[34] Pelton concurs; he believes "there is little argument left about the relationship of tobacco to lip cancer."[35] But Ackerman and Del Regato[2] point out that pipe smokers are a minority among lip cancer patients, and a dwindling one at that (Table 5).

There is some doubt about the adequacy of the control groups in the pipe smoking studies. For example, control subjects in Broders' study[14] were 20 years younger on average than his lip cancer patients. Some of the later investigations matched ages, but none matched the cancer patients and control groups in respect to occupation or residence.

Keller,[4] commenting on the studies, states that "the association of pipe smoking and lip cancers could have resulted from case-control disparities in age, residence, occupations or combinations of these and related factors." He found that "the statistical correlations of residence, nativity, outdoor occupations and age are stronger overall than that for tobacco, smoked or unsmoked, and may be more decisive than the use of tobacco in the occurrence of lip cancers." Berenblum[17] reinforces this view. He says: "It is becoming more and more apparent that cancers of the face in old men are generally attributed to sunlight. . . . The same probably holds for cancer of the lip, previously attributed to pipe smoking."

Further doubt about the significance of pipe smoking stems from the observation that lip cancer is rare in Negro pipe smokers and cancer of the upper lip is infrequent.[2] The disease is 19 times commoner in the lower than in the upper lip.[1-12]

Protruding lower lips have been blamed by some.[1, 11] Man is the sole primate with protruding lips, and the only one to expose a non-skin surface of the lip to the external environment.[36] Although the lips protrude more in Negroes than in whites, very few Negroes have been seen among lip cancer patients.[1, 2, 4, 6, 7]

*Melanin pigment* — Recent incidence data (Table 6) confirm that lip cancer is very rare in Negroes.[29, 31] Conversely, whites with a light skin and ruddy complexion seem especially susceptible.[2, 10, 11]

In the hereditary disease, xeroderma pigmentosum, the skin, lacking melanin, is extremely sensitive to sunburn and susceptible to cancer development on minimal exposure to sunlight.[37] Lip cancer[2] and actinic cheilitis[10] have been observed in these patients, and in albinism[37] which is also an inherited disease with a partial or total absence of pigmentation.

**Age of lip cancer patients** **Table 1**

| | Norway % | Sweden % | Ont % | Que % | Connecticut % | California % |
|---|---|---|---|---|---|---|
| 45 years | 95 | 94 | 92 | 91 | 94 | 85 |
| 65 years | 64 | 50 | 48 | 51 | 65 | 41 |

Sex of lip cancer patients — Table 2

| | Norway % | Denmark % | Nfld % | PEI % | NS % | NB % | Que % | Ont % | Man % | Sask % | Alta % | Connecticut % | New York % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Male | 96 | 92 | 97 | 99 | 94 | 95 | 90 | 94 | 92 | 96 | 93 | 92 | 92 |

### Associated conditions

Chronic actinic cheilitis frequently precedes lip cancer and often surrounds the lesion.[10] This condition is due to chronic exposure to sunlight and is characterized first by epidermal hyperplasia, followed by degeneration of the dermis with vasodilation.[10]

Hyperkeratosis of the lip is frequently seen in association with lip cancer,[2, 3] but rarely in Negroes.[6] Nicolau and Balus[10] observed leucoplakia in four of 76 lip cancers. None of the four had experienced prolonged exposure to sunlight. There was collagen degeneration in all 32 lip cancers that Mackie and McGovern[38] investigated, and elastic tissue degeneration was present in 84 per cent of lip cancers studied by Bernier.[1]

A second, separate intra-oral or lip cancer is far more likely in patients who already have oral cancer than in the rest of the population.[12]

The geographic,[3, 17] occupational,[4] and racial distribution[2, 6] of lip cancer patients resembles that of skin cancer patients. Thirteen per cent of Keller's[4] lip cancer patients also had cancer of the skin of the head or neck, whereas only 2 per cent of his control subjects had head and neck dermal lesions. The major cause of cancer of the exposed skin is sunlight.[2, 17, 37-39]

Not only is the distribution of lip and skin cancer similar, but so is their behaviour. Squamous cell carcinoma of the skin or vermilion border of the lip is far less prone to extend to regional lymph nodes and distant sites than from other foci. This shows up in the five year survival rates which, for lip and skin, are 83 and 80 per cent respectively,[2] compared to 42 per cent for intra-oral sites.[40] It explains why the incidence of intra-oral cancer (but not of lip cancer) correlates significantly with buccal pharyngeal mortality rates.[13] This is also the reason why a drop in buccal pharyngeal mortality rates does not indicate a decline in lip cancer incidence. In fact, provinces with the lowest buccal pharyngeal mortality rates actually have the highest rates of lip cancer incidence.[13]

Herpesvirus hominis type 1 has been mentioned[15-21] in connection with lip cancer but confirming evidence is not available. An association has recently been demonstrated between squamous cell carcinoma of the uterine cervix and herpesvirus hominis type 2.[41-43] No one knows whether this is a true cause-and-effect relationship or a common mode of transmission of the causative agents.

Though syphilis has been recorded in some patients with lip cancer,[4, 7, 18-20] its association is usually only one-quarter as frequent[18-20] as that of syphilis and tongue cancer. Moreover, the percentage of lip cancer patients with syphilis is similar to the proportion in other cancer patients[19] and in the general population.[44]

### Conclusions on what causes lip cancer

The major cause of lip cancer is the combination of melanin deficiency and prolonged exposure to ultraviolet light radiation. Recent incidence rates indicate that sunlight is the major carcinogen, though not the only one. Lip cancer can and does, in fact, occur in people unexposed to sunlight.[2, 10]

What then is the effect of age? Senility is marked by alterations in the epithelium, elastic and collagen fibres which closely resemble and may be confused with the changes produced by prolonged exposure to sunlight.[45] Although the incidence of lip cancers is highest in the senile, at least half occur earlier. The probable reason why most of these cancers occur in people over 45 is that many years of exposure to the carcinogen, sunlight, are necessary to precipitate malignancy.[45] In sunny low latitudes, like California, lip cancer may develop more quickly and manifest in younger people (Table 1).

Exposure, rather than hormonal differences, may account for the predominance in males. Men tend to spend more time outdoors due to their occupations, and lipstick may help to protect women.

### Pathogenesis

Ultraviolet light can produce skin cancer in experimental animals.[46] According to Blum,[47] the primary effect is an injury within the epidermis. Unknown mediators released from this site migrate to the dermis, injuring it.

Number of lip cancers per 100,000 rural and urban males per year — Table 3

| | Poland | Norway | Denmark | Ont | Connecticut |
|---|---|---|---|---|---|
| Rural | 3.7 | 5.9 | 8.1 | 8.3 | 3.0 |
| Urban | 2.7 | 2.9 | 2.7 | 2.0 | 2.3 |

Number of lip cancers per 100,000 males per year in the north and south — Table 4

| | Ontario rural | 10 US cities |
|---|---|---|
| North | 3.2 | 4.2 |
| South | 8.3 | 8.4 |

**Smoking and cancer** **Table 5**

| Cancer | Smoking habit | 1920 (Broders[14]) % | 1950 (Levin et al[23]) % | 1953 (Sadowsky et al[24]) % | 1959 (Wynder and Bross[22]) % | 1968 (Chierici et al[20]) % | 1970 (Keller[4]) % |
|---|---|---|---|---|---|---|---|
| Lip | Pipe only | 41 | 48 | 18 | 15 | 22 | 6 |
| Lip | Pipe and other | 78 | — | 42 | 27 | — | 12 |
| Intra-oral | Pipe and other | — | — | 46 | 21 | 13 | 11 |
| None | Pipe and other | 38 | 31 | — | — | — | 4 |

Others[38, 39] maintain that impairment of the dermis occurs first, the tissues being affected in the following order: vascular damage in the subpapillary region of the dermis; curling and fragmentation of the elastic fibres; increased basophilia and decreased distinctiveness of the collagen fibres; collagen degeneration; epidermal loss of rete pegs, pigment disturbance and atrophy; and epithelial dyskeratosis.

## Protection

Blum[47] attributes the principal protection to thickening of the stratum corneum, but Mackie and McGovern[38] view such cornification, alone, as a poor defence. They and others[39] regard melanin as the principal protector since white skin transmits twice as much ultraviolet light as Negro skin and this difference cannot be explained by the Negro's slightly thicker skin.[48]

Melanin may protect in two ways:[39] as a physical barrier which blocks the passage of ultraviolet rays, or through chemical absorption of the toxins or carcinogens they produce.[49] Significant in this regard is the occurrence of rickets in northern latitudes of North America. It affects children with dense melanin pigmentation who do not ingest calciferol — an observation which lends support to melanin's blocking capability.[50]

## Response

In all races there is a similar gradation in the distribution of melanin in various body surfaces.[51] Racial disparities are due to different rates of melanin production rather than a difference in number of melanocytes.[52] Ultraviolet radiation stimulates the production of melanin but does not increase the density of the melanocytes.[52]

Dark skinned people have a lot of pigment in all layers of the skin including the stratum corneum.[39] Dark hair also contains melanin.[52] People with an olive complexion have pigment in the basal layer of the skin; they also develop more melanin readily and evenly on exposure to ultraviolet light.[39] Fair people have hardly any pigment and form very little on exposure to ultraviolet light. That which is produced forms in patches or freckles which offer inadequate protection. The drugs methoxsalen and trioxsalen, which are taken orally, enhance the response of the skin, but not of the lips, to ultraviolet light.[53]

Lips of Caucasians exposed to ultraviolet light tend to become hyperkeratinized rather than tanned. In dark skinned races lips contain inherent pigment. Lip pigmentation frequently increases in the inherited disease known as Peutz-Jeghers syndrome.[37] There is also hyperpigmentation of the breasts, genitals and intra-oral mucosa in certain diseases of the adrenals.[54] This depends on the presence of a polypeptide melanocyte-stimulating hormone produced in the intermediate lobe of the pituitary.[55]

**Number of lip cancers per 100,000 Negro and white males per year** **Table 6**

| | South Africa[29] | New Zealand[29] | California[29] | 10 U.S. cities[31] |
|---|---|---|---|---|
| Negro | 0 | 0.2 | 0 | 0.4 |
| White | 19.8 | 3.0 | 5.4 | 5.8 |

## Artificial protection

Protective measures comprise the screening or blocking of ultraviolet light. Screening is achieved by glass,[39] smog[32] or chemicals in ointments like amyldimethylaminobenzoate (Skolex), sulisobenzone (Uval, Dome), and digalloyl trioleate (Sunswept, Warner-Chilcott).[56] Broad-brimmed hats and moustaches help to block ultraviolet rays.

Moustaches offer protection to the upper lip.[10] If they are bushy and dark enough, they may also help protect the lower lip.

Some outdoor workers may be able to use glass or opaque umbrellas, but sun-screening ointments seem to offer the best protection for white males working outdoors.

## Detection

Exposed as they are to sunlight, the lower lip and face are also readily susceptible to inspection. Cytodetection is not particularly useful for lip lesions because of the difficulty in securing adequate specimens.[57, 58] Biopsy is more reliable.[58]

Provinces that have a very high male lip cancer incidence are those that have the lowest intra-oral cancer incidence.[13] These provinces can probably do without an oral cytology program. Since their population is almost entirely Caucasian, effort should instead be directed to preventing prolonged exposure of the lower lip to ultraviolet light. The protective methods available for this purpose could probably prevent most lip cancers in these provinces.

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# Mandibular metastasis from a bronchial carcinoma:

## Report of case

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*The authors describe a case of occult bronchial carcinoma with metastasis to a mandibular bicuspid tooth socket. The secondary lesion, which could have resulted from deposition of a blood-borne embolus, may have been responsible for failure of healing in the extraction socket. Alternatively, the original toothache may have been due to an already present metastatic deposit. Either way, this article serves as a timely reminder against making a hasty and possibly erroneous diagnosis of "toothache."*

*Les auteurs décrivent un cas de carcinome bronchique latent comportant une métastase dans l'alvéole d'une prémolaire mandibulaire. La lésion secondaire, peut-être provoquée par le dépôt d'un embolus véhiculé par le sang, pourrait avoir été à l'origine de la mauvaise cicatrisation de l'alvéole de la dent extraite. Ou bien le premier mal de dents était-il dû à un dépôt métastatique déjà présent? Dans les deux cas, cet article remet opportunément en garde contre un diagnostic de "mal de dents" hâtif et possiblement erroné.*

Metastatic tumours represent only about 1 per cent of all malignant lesions of the mouth.[1] Bone is a common site for metastatic carcinoma, although the frequency of bone metastases in fatal carcinomas has varied from 15 to 70 per cent.[2, 3] The jaw bones are comparatively rare sites of metastatic carcinoma, possibly because of their low marrow content and lesser vascularity compared to more commonly involved bones.[4]

The breast is the commonest primary site for carcinomas that metastasize to the jaws, but there are also some cases where the primary site was the bronchus.[5-14] The mandible was affected in most (17) of these cases that were reported prior to 1961.[10]

We now describe a further case of bronchial carcinoma with metastasis to the mandible, in which the secondary deposit probably caused symptoms while the primary was still silent. The case illustrates why dentists should be aware of the condition and underlines the difficulty of early diagnosis.

### Report of case

In April 1969 the patient, a 73 year old man, went to his dentist complaining of pain of several days' duration in the mandibular left premolar region. On examination, the second bicuspid was tender to pressure, loose, and the surrounding gingiva was swollen. The clinical diagnosis was acute periodontitis.

The previous medical history showed that this man had been admitted to the Jewish General Hospital, Montreal, in June 1967 with lower lobe pneumonia. He had at that time a severe chronic bronchitis and emphysema, as well as mild diabetes mellitus. The pneumonia was successfully treated with antibiotics and branchodilators.

The patient was re-admitted in October 1968 because of acute coronary insufficiency. This was managed with bed rest.

The dentist who saw him in April 1969 extracted the mandibular second bicuspid. There were no further symptoms at that time.

In October 1969 he was again admitted to the Jewish General Hospital — this time for acute left sided pneumothorax, which was treated with a thoracotomy tube and expansion of the left lung.

Following discharge on October 8, the patient began having haemoptysis consisting of bright red blood associated with some yellow sputum. Though not in any acute distress, he was promptly re-admitted.

The blood pressure was 140/80, pulse rate 84 per minute and regular, respirations 24 per minute, temperature 98.6°F. Examination findings of the head, ears, eyes, nose and throat were within normal limits. The trachea was mid-line. There was no adenopathy.

On chest examination the breath sounds were distinct. The expiratory phase was prolonged. There were scattered ronchi. Cardiac examination was normal. The abdomen was soft and without any palpable organs or masses. There was no clubbing. The remainder of the examination was negative.

Laboratory investigations showed a little sugar in the urine but were otherwise within normal limits. The chest x-ray showed a rather poorly defined area of increased density, posterior and adjacent to the left hilum, probably in the left lower lobe. A skeletal survey was negative.

Bronchoscopy disclosed a normal right sided bronchial system. The carina was sharp and mobile. Fresh blood was observed in the left lower lobe bronchial orifices, and a biopsy was taken from the thickened mucosa of the lateral wall of the basal segment of the left lower lobe. This proved to be epidermoid carcinoma.

Thoracotomy and left lower lobectomy were performed on December 1. Tracheostomy was also done because of the severe bronchitis and emphysema. The pathological specimen revealed moderately differentiated squamous cell carcinoma of the lung (Fig 1) with tumour extension to pulmonary vessels and hilar lymph nodes.

The postoperative course was uneventful and the patient was discharged from hospital on December 22. His progress during the next few weeks was satisfactory from a general and pulmonary point of view, but in January 1970 he developed a pain in the left mandible for which he saw an oral surgeon.

On examination the left mandibular bicuspid socket was incompletely healed and full of irregular red, soft tissue that was fairly firm in consistency and confined to the immediate area of the socket. An intra-oral radiograph showed irregular bone resorption around the socket rather than filling of the socket by new bone (Fig 2). The clinical diagnosis was metastatic carcinoma, and a biopsy specimen from the lesion revealed a histological picture of squamous cell carcinoma similar to the bronchial lesion (Fig 1, 3).

Chest radiographs, taken in February and showing the post-thoracotomy changes in the left lower lung field, revealed no change from the earlier discharge films. A skeletal survey at this time was negative except for the lytic lesion in the mandible.

In May 1970 the patient developed a severe pain in the right thigh. Radiographs revealed several lytic lesions at the distal end of the right femur, and he received radiation therapy to relieve the pain.

The patient gradually deteriorated and died in October 1970 of broncho-pneumonia. An autopsy confirmed the clinical impression of diffuse metastatic carcinoma, involving kidneys, adrenal glands and a recurrence at the line of resection.

## Discussion

The difficulty in making a correct diagnosis when a metastatic lesion causes symptoms before the primary tumour does is well known, particularly in metastases to the jaws.[10, 12, 15, 16] In 20 cases of secondary jaw carcinoma seen at the Mayo Clinic up to 1957 the only symptom common to all was swelling.[16] Other symptoms that occur are pain, loosening of teeth, bleeding, paraesthesia, anaesthesia and apparent exacerbations of chronic periodontitis. These features may occur in any combination, depending on the location of the metastasis and the pre-existing state of the tissues in the area. As a consequence the secondary lesion may readily simulate a number of common dental conditions.

Skeletal metastases from carcinomas may be osteolytic, osteoplastic, or both.[17] Hence, the radiographic appearances are not consistent and constitute a further source of diagnostic difficulty. Though metastases from bronchial carcinoma are usually osteoplastic,[3] our patient's lesion was predominantly lytic.

The combination of these factors — the confusing symptomatology, the radiographic inconsistency, the

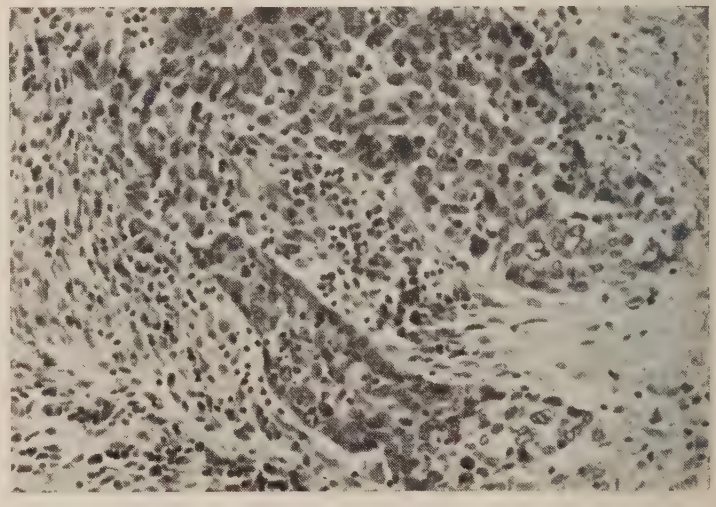

Fig 1 Photomicrograph of the moderately anaplastic bronchial squamous cell carcinoma showing invasion of the peribronchial tissues. H. E., original magnification x 64.

rarity of the condition and the fact that in the absence of a known primary tumour a secondary lesion is often not considered at all — makes the diagnosis very difficult.

We can only speculate about the course of the disease in our patient's left mandible after April 1969. Possibly the original lesion may simply have been an acute periodontitis; later, a blood-borne metastatic embolus arrived at the site during the period of bone healing. This interpretation corresponds with the suggestion that bone metastases tend to settle in areas where the blood supply is good. It is also possible, however, that the symptoms felt in April 1969 were caused by an already present metastatic deposit that imitated the clinical features of acute periodontitis. Microscopic examination of the periodontal tissues at this stage would have resolved the question and, if positive for carcinoma, would have radically altered the course of treatment.

Fig 2 Radiograph of the left mandibular premolar area taken nine months after the extraction of the second bicuspid. Note the evidence of irregular resorption around the socket which has not filled with new bone. There is a suggestion of an osteoplastic reaction beyond the resorbed area.

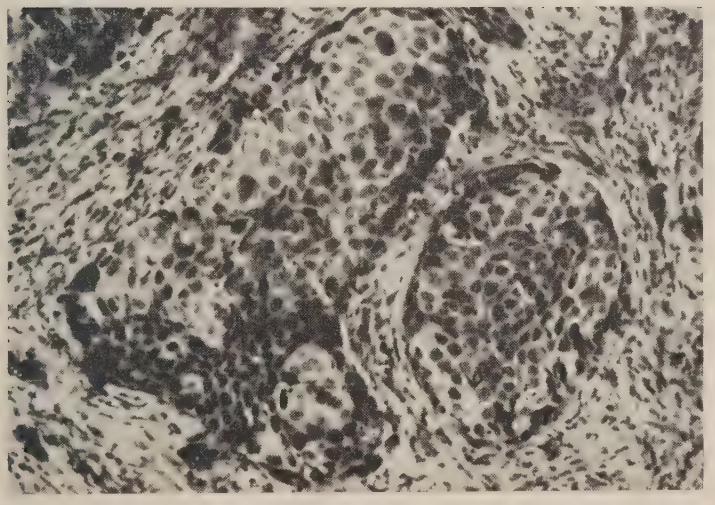

Fig 3 Photomicrograph of the metastatic lesion in the mandible. This moderately anaplastic squamous cell carcinoma shows more cellular pleomorphism than the primary tumour. H. E., original magnification x 64.

If the former explanation is correct, this case exemplifies an extremely rare cause of failure of healing of an extraction socket. Otherwise, it exemplifies an extremely rare cause of toothache and illustrates once again the importance of establishing a definitive diagnosis before extracting teeth. In addition, the history illustrates the need for careful postoperative follow-up examination. Had this been done in the present case, the delayed healing would have been noticed and investigated much earlier.

In any event, the case is an example of a rare site for metastasis from a bronchial carcinoma. And above all else, it serves to remind dentists of their responsibility to the whole patient, and not only to the mouth.


## Summary

The authors have described a case of metastasis from a bronchial carcinoma to the mandible. A tooth was extracted from the affected mandibular site six months before the pulmonary disease was diagnosed. A tumour metastasis may have caused the symptoms that led to the extraction before any other symptoms were noted from the primary lesion. The metastasis definitely prevented normal healing of the socket.



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# Current status of cryosurgery for benign oral neoplasms

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*The authors characterize cryosurgery as a safe, almost painless, haemostatic surgical technique for benign and precancerous lesions. Healing is somewhat slow, but the absence of postoperative complications, such as infection and haemorrhage, more than compensates for this feature. Useful in treating vascular and angiomatous lesions, cryosurgery is also effective in eradicating extensive leucoplakic areas. The location and extent of the cryosurgery lesion is easy to control, and the area of slough can be readily predicted. Oral tumours are very accessible and can be treated, repeatedly if necessary, without undue pain or discomfort.*

*Les auteurs présentent la cryochirurgie des lésions bénignes et précancéreuses comme une technique chirurgicale hémostatique, sans danger, et très peu douloureuse. La cicatrisation est assez lente, mais cet inconvénient est largement compensé par l'absence de complications post-opératoires telles qu'infection et hémorragie. Très pratique pour traiter les lésions vasculaires et angiomateuses, la cryochirurgie est aussi efficace pour éliminer les zones leucoplasiques étendues. Il est facile de contrôler l'emplacement et l'étendue de la lésion cryochirurgicale et de prévoir la grandeur de la croute. Les tumeurs buccales, qui sont très accessibles, peuvent ainsi être traitées, et plusieurs fois au besoin, sans l'inconvénient de la douleur ou des malaises.*

Cryosurgery is the clinical use of freezing for the removal of diseased tissue without pain or bleeding. It is used to eradicate benign and malignant neoplasms, while preserving the structural continuity of the affected tissues, especially in bone.

All benign tumours, including vascular and haemangiomatous lesions, can be treated by this technique without pain or bleeding. Cryosurgery is also well suited to the management of oral cancer because oral lesions are accessible to treatment and observation.

In terms of survival, results have been comparable to those of excision. The major use of cryosurgery in malignancies, however, is in the palliative treatment of large, painful, inoperable or radio-resistant malignant tumours, and in poor risk patients.

This paper deals primarily with cryosurgical procedures in eradication of benign neoplasms.

## Equipment

Attempts at cryogenic tissue destruction have been reported for more than a century.[1-7] Cooper described the first successful destruction of a lesion by precisely localizing the freezing process with an apparatus using liquid nitrogen as coolant. Minimal oedema and little scarring were the major features.[8, 9]

Liquid nitrogen, an inexpensive non-explosive, boils at −196°C. The cryosurgical apparatus consists of a vacuum insulated reservoir with a built in heating coil. This maintains a pressure of 22 psi to force the liquid nitrogen into the vacuum insulated flexible shaft that leads to an insulated probe with a non-insulated tip.[9-14] In the tip, the liquid nitrogen instantly withdraws heat from adjacent tissues causing them to freeze. Any temperature between 37°C and −196°C can be selected on a selector dial.[9, 15] Probe tips range from 2.2 to 9.5mm in diameter.

## Technique

Treatments can be given in a clinic or operating room, depending on the size and type of lesion and

on the patient's physical status. Sterile technique and equipment are essential.

A probe suitable for the lesion being treated is precooled and applied to the tumour when the recorder shows the probe tip temperature is about 0°C. Liquid nitrogen is then allowed to flow fast, causing a rapid fall in probe temperature which results in immediate tissue adherence, followed by freezing. The frozen tissue feels cold and hard and has a frosted appearance.

Nitrogen is applied until the entire lesion as well as a predetermined margin of normal tissue are frosted.[11-13] To assure adequate penetration to the full depth of the lesion, tissue temperature indicators or thermistors are inserted into the tissues at various depths prior to freezing.[12, 14, 16]

In larger tumours the cryoprobe is applied repeatedly so that the frozen areas overlap and encompass the entire lesion.[11, 13]

A popular technique called "contact freezing," achieved by touching the tumour surface, is particularly useful for small superficial lesions or broad lesions like leucoplakia or papillary epithelial hyperplasia. A second method called "penetrating freezing," where the probe is inserted directly into the tumour mass, is used mainly for large bulky tumours. Both techniques can be used to supplement each other.[17]

The metal probe cannot adapt to the irregular surface of the bone, thus hindering the necessary heat exchange. To circumvent this problem, bone cavities are filled with lubricating jelly or saline and frozen by multiple cryoprobe applications. These solutions provide a conducting medium and act as a sort of extension of the probe tip, thereby increasing the probe to bone contact area. An insulator, like Neoprene, serves to protect adjacent soft tissues. The depth of freezing is judged by inspection of frozen tissue which turns white and by thermistors inserted into the bone before freezing.[16, 18, 19]

## Mechanisms of action

The manner in which cryosurgery exerts its effect is still unclear. We know, however, that animal tissue freezes at −2.2°C, though inconsistently at this temperature.[20] Six different mechanisms act additively or synergistically during freezing to destroy cells. They include intracellular and extracellular dehydration;[21, 22] toxic electrolyte concentrations and pH changes;[23] denaturation of lipid-protein complexes of the nuclear, mitochondrial, and cell membranes;[24] thermal shock;[25] ice crystallization;[15] and stasis of the microcirculation.[26]

## Cryosurgery in soft tissue

Using minimum temperatures to achieve a maximum temperature gradient facilitates the extraction of heat from the tissues and enlarges the frozen area.[13] The rate and depth of freezing, and hence the destruction, vary inversely with the distance from the probe tip and directly with the size of the cryoprobe, degree of cooling, duration of exposure and tissue sensitivity.[1, 27]

Rapid freezing also diminishes the possibility of cell survival at the periphery. Since thawing contributes to cell death, alternate freezing and thawing is more lethal than prolonged freezing.[11, 17, 27, 28] Consequently, surgeons use repeated and overlapping cryogenic applications in larger lesions to ensure destruction of the entire lesion. Increased cell death is assured by permitting the thawing process to proceed without rewarming after probe removal.[13]

The size and shape of the cryogenic lesion depends primarily on the freezing temperature and to a lesser extent on vascularity, body temperature, density and proximity of large blood vessels.[15, 17, 28] This is borne out by Cooper's observation that, in the probe temperature range of −20°C to −110°C, the frozen lesion attains 80 per cent of its eventual size within the first 30 seconds. Four to five minutes additional freezing are necessary to achieve the full dimension.[28]

A small zone of freezing surrounds the probe tip within five seconds of onset of a sub-zero freezing temperature, and extends generally in the form of a sphere around the probe tip. All elements within the lesion freeze solid and the lesion becomes completely hard and avascular.[28]

When the lesion thaws it gradually resumes its previous colour, and for approximately 30 to 60 seconds becomes red and appears hyperaemic. The swelling, which begins right after thawing, reaches a peak in 24 hours.[11] The resulting necrosis, not evident at first, appears slowly over a period of hours and becomes complete in one to three days. By then the lesion is haemostatic, sharply circumscribed, and delineated from surrounding normal tissue by a thin reactive zone ranging from a thickness of several cells to 1mm. Tissues beyond the limits of the cryogenic lesion generally show very little change. This sharp demarcation occurs because adjacent tissues are not harmed when there is a sharp temperature gradient and heat loss.[11, 12, 15, 17, 28, 29]

Microscopic examination of the 24 hour old lesion reveals disruption of the affected tissue, with irregular areas of pallor and smaller necrotic zones. Ghosts of former cells are clearly visible in the stroma and impart the appearance of an ischaemic infarct to the cryogenic lesion. The smaller vessels in the area are congested, while many areas of necrosis and extravasation of red and white blood cells into the lesion are demonstrable.[17, 28] However, there is no gross bleeding in the necrotic tissues or in the adjacent normal tissue.[11]

The same picture persists after 48 hours. Seven days after freezing we see hyperplastic changes in the walls of some vessels. Phagocytes are numerous at the periphery of the lesion, while the centre undergoes cystic degeneration leaving a coagulative necrotic zone.[28] Within seven to 14 days, depending on the tissue involved, the lesion sloughs and leaves a clean, granulating base which heals and is replaced eventually by a thin scar or re-epithelialization.[17]

Connective tissues such as nerve sheaths resist structural change after cryodevitalization, and the preservation of their structural integrity facilitates the regeneration of the nerves frozen during cryosurgery.[30]

The muscular walls of large arteries are also remarkably resistant to the effects of freezing, even within the cryogenic temperature range. Although they freeze solid during cryosurgery, there is no actual thrombosis. Rather, the frozen blood within the large vessels is lysed during thawing, re-establishing a normal arterial circulation.[14, 17, 28, 30]

The inelastic and collagenous fibres maintain the structure of the vessel wall and prevent aneurysm formation or rupture. This is very significant, for it removes the danger of freezing major blood vessels which may be in the proximity of the tumour.[14] On the other hand, cryosurgery induces necrosis in capillaries and small arterioles and venules.[14, 17, 28]

Cryosurgery is virtually painless because of the immediate destruction of free nerve endings within and adjacent to the tumour being frozen. In fact, there is relief from any localized pain due to the tumour.[17, 28] Some patients have no pain when no local anaesthesia is used, while others experience mild to moderate discomfort during freezing.[17] Little postoperative care is necessary, and the patient easily tolerates a soft diet.[13]

During thawing, there is a local burning sensation which usually disappears within a few minutes. In mucous membranes, this pain becomes evident 24 hours after freezing and gradually disappears in 12 hours.[17]

Another common discomfort is paraesthesia when nerves are inadvertently frozen. However, the major source of postoperative complaints is sloughing of the necrotic tissue. This is easily treated with oral rinses and by trimming the sloughing strands.[13]

## Cryosurgery of bone

Emmings,[27] who studied bone freezing in 10 canine mandibles, found a temperature gradient of 160°C within 1-1.5cm of the coil.[2, 7, 31] Devitalization of bone occurred after only five minutes exposure to temperatures below freezing (0°C).[32] After thawing, the bone appeared normal and most specimens showed little swelling, although a few had considerable oedema.

Histologically, freezing caused complete devitalization and obliterated any living cells in the lacunae. The lesions were sharply demarcated at the junction between vital and non-vital bone. As in soft tissue freezing, this again resulted from the steep and rapid fall in temperature.[16, 27] Loose cellular fibrous tissue grew from the normal vital bone at the border into the frozen area. Accompanying this proliferation was a minimal infiltrate and some inflammation.

Radiographically, the junction of the frozen and non-frozen bone displayed a slowly increasing opacity for the first two months, with areas of radiolucency and cortical bone scalloping in the devitalized zone.[27]

One month after freezing, the frozen bone seemed thicker. The necrotic marrow was replaced by fibrous tissue, and there was resorption of non-vital cortical bone around the Haversian systems. This was followed by new bone deposition around the non-vital trabeculae and on the endosteal surface of the cortical bone.[27]

The teeth in the frozen area were devitalized and loose. This mobility, which occurred within one month, became maximal after three months. The periodontal membranes remained necrotic for up to two months, after which they were gradually replaced by normally oriented periodontal fibres.[27]

By three months, the thickening of the frozen area of bone was at a maximum. Cortical surface irregularity was most pronounced, particularly at the junction between vital and non-vital bone, giving the clinical appearance of a mandibular torus.

Subperiosteal trabecular bone formation with osteogenesis was evident along the entire periosteal surface of the non-vital bone.[27] The devitalized matrix acted as a scaffold for the regeneration of new bone, and repair occurred like the "creeping substitution"[33] seen in an autogenous bone graft.[19, 33] This osteogenesis was always better on the lingual surface of the mandible with its superior vascular supply and excellent early reattachment of the mucosa. The entire region of devitalized bone became encircled by a sling of new, dense, well organized bone which accounted for the buccolingual thickening as well as for the strength of the non-vital segment.[27]

After six months, the cortical bone surface irregularities were gone, and there was a slight decrease in the buccolingual diameter. Histologically, the trabecular subperiosteal bone and almost all of the devitalized bone had been replaced by well organized Haversian systems.

The resorptive changes seen in early radiographs began to fade after three months and by the sixth month a normal radiographic appearance had been restored. By this time some teeth had periapical lesions resembling granulomas, but pulp vitality had been restored in others by an ingrowth of connective tissue through the apical foramina. The periodontal fibres were fully reformed so that the teeth were no longer loose, but all the involved teeth had permanently widened periodontal membranes. Ankylosis was a frequent finding.[27]

Blood flow ceased in the inferior alveolar artery a few days after freezing. However, its structure was preserved by the collagenous and elastic fibres of the vessel wall. By six months, the thrombi that had filled the vessels were recanalized, and the walls of the artery were restored by mature collagen. Initial revascularization of the devitalized bone came from the periosteal vessels, but revascularization of the inferior alveolar artery was very important for quicker healing.[27]

The healing of the soft tissues was delayed when bone was exposed by sloughing of the overlying soft tissues. However, there were no ill effects except for some surface erosion which lasted until the bone was re-covered by soft tissue.[13, 27]

Long term observation of bone frozen in the treatment of oral carcinomas or bone tumours indicates that complete healing of the devitalized bone actually requires from one to two years.[16]

## Benign tumour cryosurgery

Various benign tumours of different areas of the body and oral cavity have been successfully treated with cryosurgery. Favourable responses to experimental bone freezing and cryosurgery of oral cancer have led some investigators to develop a technique of combined curettage and cryosurgery for primary bone neoplasms.

Gage[16] says that small tumours in the mandible may be treated in this way, but he is uncertain whether freezing contributes to the success of the operation. There is, however, little risk in combining both methods for benign tumours.

Results in the treatment of large bone tumours have been less gratifying but Gage admits that cryosurgery used alone may be better than following previous curettage.[16]

Sippel and Emmings employed the combined technique successfully in a case of ossifying fibroma.[19] Smith reported encouraging success in the cryosurgical management of nasopharyngeal angiofibromas.[34] Marcove et al treated four cases of giant-cell tumours of the long bones with cryosurgery and got prompt relief of pain and arrestment of the destructive progress of the lesions. The same group also treated a case of fibrous dysplasia of the tibia with cryosurgery and packed the defect with bank bone. A one year follow-up revealed good regeneration.[18]

Similar success has been reported in the treatment of benign tumours of soft tissue. Emmings et al treated a 48 year old man with pseudo-epitheliomatous hyperplasia of the hard palate with multiple cryogenic applications. Sloughing occurred postoperatively from the third to the tenth day. Five weeks later the hard palate was covered with smooth firm tissue. Nine months after the insertion of well fitting dentures the palatal mucosa was again normal and without any sign of recurrence of the lesion. Two other cases were treated in the same manner with equally good results.[13]

Amaral et al obtained similar good results in their treatment of a case of inflammatory papillary hyperplasia.[35]

Emmings et al treated several patients with multiple, discrete or confluent patches of hyperkeratosis or leucoplakia. Cryogenic applications of short duration were repeated until the whole lesion was included. The cases with leucoplakia required freezing to greater depths. Uniformly good results without recurrence were observed.[13]

The same group treated a mixed tumour of the palate in a 73 year old man. The lesion, which filled more than half the palate to the depth of the occlusal plane, had been noticed 18 months earlier and was slowly growing. It was frozen in one application under local anaesthesia and sloughed in seven days. Biopsy of the margin revealed residual tumour tissue which was again treated with cryosurgery. This resulted in a 3mm diameter naso-oral fistula which closed uneventfully during the six week healing period. There has been no recurrence for over two years.[13]

Because of the excellent haemostasis during and after cryosurgery, the technique is often used in the treatment of vascular or haemangiomatous lesions. Von Leden and Rand used cryosurgery in vascular lesions in the head and neck which were not amenable to conventional operative or radiological procedures. Included were extensive tumours of the face and mouth in small children and recurrent haemorrhagic lesions in adult patients. The authors were impressed by the absence of pain and the lack of recurrent bleeding and other significant complications, even in patients with severe debility from blood dyscrasias. Most lesions diminished although some of the more extensive ones required several applications.[1, 12]

Marcove et al treated four cases of aneurysmal bone cysts in the long bones with cryosurgery. All had pre-operative pain which stopped right after freezing. The progress of the lesions was arrested even though they had persisted after previous surgical removal by curettage.[18] Emmings et al successfully treated a 2cm diameter haemangioma of the left buccal mucosa in a 70 year old man with a history of haemoptysis. Several other oral haemangiomas were successfully treated in this manner.[13] Gage has also reported success in the cryogenic treatment of a 2cm diameter haemangioma of the buccal mucosa.[11]

## Conclusions

Cryosurgery is a safe, versatile, surgical technique. Relatively painless and haemostatic, it provokes minimal tissue reaction.

Benign and precancerous lesions can be successfully eradicated with cryosurgery. The results compare favourably with those obtained by curettage, excision and electrocautery.

The procedure is simple and seldom requires local anaesthesia. The location and extent of the cryosurgery lesion is easy to control, and the area of slough is easy to predict. Oral tumours are very accessible and can be easily treated, repeatedly if necessary, without pain or discomfort.

Postoperatively, there is little discomfort or pain. Analgesics, other than salicylates, are seldom necessary. Although the tissues heal slowly, this is more than compensated by the absence of serious local complications such as infection or haemorrhage.

Excellent cosmetic results are the rule rather than the exception.

Cryosurgery is particularly suited to the treatment of vascular or angiomatous lesions. The ease and success with which large areas of leucoplakia or papillary epithelial hyperplasia are treated is likewise notable.

In tumours involving bone, as in mixed tumours or cylindromas, cryosurgery can penetrate deeply without necessitating the excision of large segments of bone. This stems from the lethal effect of freezing which extends into the adjacent periosteum and bone to destroy any tumour it may contain.

Cryosurgery is also the method of choice in the treatment of poor risk patients, such as those with cardiac or pulmonary disease.

Any failure to control a tumour in the first attempt is usually due to inaccurate assessment of its extent and insufficient exposure to the freezing temperatures.

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*(Continued from page 119)*

must be better co-ordination of the component parts of the dental service complex in the interests of both economy and efficiency of operation. And they point out that the permissible duties of one of the components — the dental auxiliaries — must be expanded to meet these needs.

If dentists have seemed hesitant on this score, it is not because of self-interest or indifference to the requirements of their fellow citizens. Well-entrenched professional attitudes are changing, even though caution borne of inertia and reluctance to change persists. The profession, as part of society, is bound to be carried along with that society as prevailing attitudes change and shift. But conservatism is not necessarily reaction. To say that we would like to see clearly where we are going rather than blindly pursue change for the sake of getting away from where we are, is the only realistic attitude a responsible profession can take.[1]

What we should remember, however, is that conservatism is no substitute for voluntary cooperation in the provision of health services. The achievement of such cooperation is probably the only alternative to the imposition of arbitrary control from without.

Sustained cooperation is never easy to achieve or maintain. It takes the active effort of more than one party to make it a reality. One thing is certain, however: the profession cannot afford to be responsible for a failure in cooperation by being unwilling to go at least half-way. There is too much at stake. Flexibility and cooperation are infinitely more productive than intransigence.

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# Un excellent procédé de blocage intermaxillaire chez l'enfant jeune: les ligatures transdentinaires de Houpert

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*En recherchant une méthode de choix pour réduire et immobiliser les fractures des maxillaires chez l'enfant jeune avec denture mixte, les auteurs examinent les méthodes classiques et décrivent la méthode de Houpert qui utilise des ligatures transdentinaires pour créer un appareillage ancré sur les dents temporaires.*

*Jaw fractures in children are often difficult to immobilize because of the shape of the primary teeth and because of the permanent teeth developing near the inferior border of the jaw. Intermaxillary wiring, interosseous wiring and pin fixation, transosseous wiring, archwires soldered to orthodontic bands, and acrylic or metallic splints with or without circumferential wiring all have disadvantages. The authors prefer the method of intradental wiring of primary teeth originated by Houpert which is widely used in France, Belgium and Switzerland. Fine stainless steel wire is passed through perforations cut into the crowns of the primary teeth. Upper and lower teeth are then wired directly to each other or to labial and lingual arch bars. The wires are removed when healing is completed and the holes are filled with amalgam.*

Les fractures des maxillaires sont loin d'être rares chez l'enfant: 4 p.c. de ces lésions sont rencontrées de zéro à neuf ans (Pfeifer: école de Schuchardt);[1] 10 p.c. entre quatre et 11 ans pour Kazanjian et Converse;[2] Brugirard et Achard ont relevé 72 de leurs 558 fractures sur des sujets de moins de 12 ans.[3] C'est dire que l'on doit disposer de méthodes sûres parmi lesquelles l'immobilisation par ligatures métalliques transfixiant la dentine nous paraît l'une des plus fidèles.

## Problèmes particuliers à l'enfant

Les impératifs thérapeutiques sont, à l'évidence, les mêmes que chez l'adulte: réduction suivie d'immobilisation. Certes la réduction peut ne pas être aussi précise: cela n'empêchera pas les dents permanentes de savoir se placer en articulé correct lors de leur éruption.

Mais l'immobilisation doit être stricte, sous peine de voir apparaître retards de consolidation ou cals vicieux.

Le choix d'un procédé sera gouverné par l'anatomie particulière de l'enfant en lactéale: présence d'une accumulation de germes de dents permanentes occupant pratiquement tout l'espace entre les corticales, en particulier au niveau de la mandibule. C'est dire que les procédés chirurgicaux intra-osseux (ostéosynthèse directe du foyer de fracture, fixateurs externes, etc.) sont redoutables en raison du risque de traumatisme des germes. Certes, le trouble ne s'extériориserait qu'après des années, à la date d'eruption de la dent, mais cela n'est pas une excuse.

Le blocage représente donc l'essentiel du traitement. Se pose alors le problème des ancrages.

La période la plus défavorable se situe avant neuf ans. Dents de lait coniques ou à demi-détruites, dents de six ans non encore complètement dégagées rendent l'amarrage du blocage difficile et précaire.

## Historique des techniques

Que voit-on proposer dans la littérature?

1. Ligatures péridentaires (Ivy ou dérivés): elles sont très instables.
2. Bagues d'orthodontie ou couronnes: mieux, mais pas toujours applicables.
3. Gouttières en résine: elles sont valables pour des traumatismes dentaires ou dento-alvéolaires, mais insuffisantes pour des fractures complètes.
4. Gouttières métalliques scellées: bonne méthode en général, mais exigeant un excellent laboratoire de

prothèse adjacent au service hospitalier. Elle nécessite en outre deux anesthésies générales (l'une pour la prise d'empreintes, l'autre pour la pose), argument que nous avons soulevé depuis longtemps, et que nous retrouvons chez Graham et Peltier en 1960.[4] On ne peut en outre éviter un retard d'au moins deux jours, alors que la consolidation s'amorce très vite en mauvaise position.

5. Cerclage péri-mandibulaire: c'est incontestablement le seul procédé sûr; cela lui vaut, malgré ses inconvénients et la fréquence des réactions inflammatoires et périostées, d'être défendu par de nombreux auteurs: très énergiquement par Lal et al en 1959,[5] par Krüger et Pedersen en 1968.[6] Il pourrait être complété, en ce qui concerne le haut, par une suspension à l'épine nasale,[6-8] ou même une suspension sous-cutanée au malaire.[1]

Mais on ressent, à la lecture, la gêne de nombreux auteurs[9] à ne pouvoir proposer que des techniques chirurgicales non adaptées à l'enfant, ou de petits procédés aussi élémentaires qu'incertains.

Ces difficultés ont amené certains à ré-envisager les possibilités d'utilisation de la denture temporaire, quitte à la traumatiser quelque peu: mieux vaut raccourcir la vie de quelques dents de lait, si un résultat parfait peut être obtenu à ce prix, plutôt que d'avoir à choisir entre une immobilisation insuffisante, et une méthode compliquée ou risquant de compromettre sournoisement des germes de dents permanentes.

Fig 1

Fig 2

### Utilisation des dents de lait: deux orientations

1. Pratiquer sur les faces proximales des échancrures destinées à assurer la rétention de ligatures classiques. Mugnier[10] suggère ce procédé si l'on ne dispose pas d'une turbine, jugée par lui indispensable à la perforation des orifices à la Houpert dont nous allons parler. Cette technique ne paraît pas avoir été largement suivie.

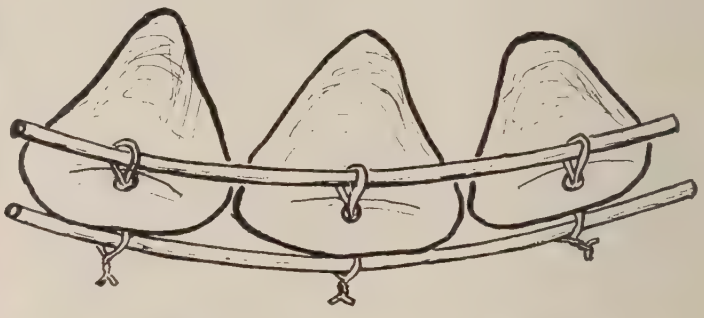

Fig 3

Fig 4

2. La méthode de Houpert,[11-12] assez couramment utilisée en Europe francophone:[13-16] procédé dit des ligatures transdentinaires (ou transcoronaires).

### La technique de Houpert

On fore avec une fraise ultra-fine un petit orifice dans la couronne de chacune des dents de lait encore présentes sur l'arcade: extra-pulpaire sur les dents

encore intactes (cependant pas trop près du bord libre afin de ne pas risquer une fracture parcellaire), n'importe où sur les dents partiellement détruites. Cet orifice donne passage à des fils d'acier de 0.2mm utilisables de plusieurs façons: (1) ligature directe, par anse de fil, à la dent antagoniste identiquement perforée (Fig 1, 2); (2) fixation d'arcs comme proposé par Ginestet[16] (Fig 3).

L'ensemble des manoeuvres ne demande que quelques minutes, sous anesthésie générale. Si l'on redoute que l'enfant lutte ultérieurement contre son appareillage, deux gouttes de résine auto-polymérisable verrouilleront les anses de fil (Fig 4).

Lorsque le blocage est terminé (en général après trois semaines, chez l'enfant), les perforations sont obturées, à l'amalgame pour la plupart des auteurs. Certains voient là indication à amalgame de cuivre. Qu'en penser? Pour Granath son adaptation marginale serait meilleure que celle de l'amalgame d'argent. Tel n'est pas l'avis d'Atto et al[17] qui ont montré (in vitro il est vrai) qu'à la longue une certaine désintégration se produirait, avec apparition d'une proportion de caries très importante. Pour certains, tel Mathewson[18] les qualités mécaniques inférieures du cuivre seraient compensées par un effet oligo-dynamique. Massler[19] craint son effet toxique sur la pulpe, alors que Held[20] voit en lui l'amalgame idéal pour l'enfant. De toute façon, pour ces dents à durée de vie limitée, le problème ne nous paraît pas essentiel.

Pour certaines fractures, rétro-dentaires ou peu déplacées, une paire de ligatures symétriques suffit (perforation des quatre canines, par exemple: Fig 1 et Fig 4). Certaines fractures complexes ou déplacées peuvent exiger la mise en place de plusieurs anses de fil.

## Tolérance

La tolérance est excellente si les orifices sont bien placés. Il est évident qu'un forage près de la pulpe pourrait entraîner une réaction de celle-ci: à traiter classiquement après la suppression du blocage. Il se produit vraisemblablement quelques mortifications latentes dans les mois suivants; mais sont-elles inadmissibles si l'on songe à la destinée des dents de lait à cet âge?

## Résultats personnels

La casuistique de notre service avait été revue par notre élève Azéma à l'occasion de sa thèse, consacrée en 1967 à l'étude de 114 fractures de la face chez l'enfant.[21] Il avait relevé les chiffres suivants:

— fractures simples de la mandibule: huit cas sur 17 ont été traités par ligatures transdentinaires;

— fractures complexes de la mandibule: quatre cas sur 12;

— fractures combinées des deux maxillaires: quatre cas sur 13.

Il n'y a eu aucune complication.

La fréquence d'emploi de cette technique, dans une clinique hautement spécialisée, montre qu'il s'agit bien d'un procédé rapide, sûr et anodin. Ne sont-ce pas là les qualités que l'on demande à un procédé de blocage intermaxillaire chez l'enfant?

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# Clinical effect of formaldehyde preparations in pulpotomy for primary molars

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*Pulpotomies were performed in 46 vital and non-vital primary molars with varying degrees of pulp injury. A commercial formaldehyde preparation was used as medication over the tissues remaining in the root canals. The results were judged from the clinical and radiographic response after postoperative periods ranging from 10 to 65 months. No histological studies were made. All 19 vital teeth and 11 non-vital teeth with healthy supporting tissue responded favourably. Pre-operative bone damage was apparently reversed in seven of the remaining 16 non-vital teeth where this condition existed prior to pulpotomy. The author concludes that the formaldehyde preparation may be useful for pulpotomy in vital primary teeth and in primary teeth that have lost most of the vital pulp but have escaped frank bone damage.*

*Des pulpotomies furent effectuées sur 46 molaires primaires vitales et avitales présentant des lésions pulpaires de différents degrés. Le reste des tissus dans les canaux radiculaires furent traités par application d'une préparation commerciale de formol. Les résultats furent évalués cliniquement et radiographiquement après des périodes post-opératoires allant de 10 à 65 mois. Aucune étude histologique ne fut effectuée. Chacune des 19 dents vitales et 11 dents avitales dont les tissus de support étaient sains réagirent favorablement. L'atteinte osseuse pré-opératoire fut apparemment renversée dans sept des 16 dents avitales restantes où elle existait avant la pulpotomie. L'auteur conclut que cette préparation de formol peut être utile dans la pulpotomie des dents primaires vitales et des dents primaires qui ont perdu la plupart de leur pulpe vitale sans subir de grand dommage osseux.*

On this continent, pulpotomy has by tradition been restricted to vital teeth. Yet, despite advances in the prevention and control of dental caries, dentists must still contend with carious pulp exposures in primary molars.

The basic objectives of any pulpotomy procedure are the relief of pain, retention of the treated tooth in normal function and arrest of the disease process which can lead from a small carious lesion to complete destruction of the affected tooth, damage of supporting tissues and permanent successors, and massive infection of the entire facial area.

This paper describes the clinical results of pulpotomy in 46 vital and non-vital primary molars using $N_2$, a commercial formaldehyde medicament.

## Review of literature

Pulpotomy in teeth with vital pulps has received considerable attention. But attempts to preserve vitality of root canal contents and retain infected primary teeth by the use of calcium hydroxide or zinc oxide-eugenol preparations have not been very successful.[1-5]

Nacht[4] described a devitalizing technique for primary molars using Oxpara, a paraformaldehyde paste. He used the material in 467 primary teeth and reported only 30 instances where degeneration of surrounding tissues necessitated removal of the teeth. Many treated teeth exfoliated prematurely and were followed by early erupting bicuspids.

More recently formocresol preparations have claimed renewed attention, and very satisfactory clinical results have been reported[1, 2, 6-8] with pulpotomy in vital teeth.

Sweet,[9] in 1930, used formocresol for necrotic nonvital primary teeth in what practically amounted to a pulpectomy and obliteration of root canals. It required at least four appointments. Twenty-five years later Andrew[10] described a pulpotomy technique for infected and necrotic primary teeth, using a commercial mummifying paste. More recently Velling[11] reported satisfactory clinical results after treating 863 infected and necrotic primary teeth by pulpotomy and a special "formalin solution."

The $N_2$ products were developed at the University of Pavia, Italy, and their use was first described by Sargenti and Richter.[12-14]

The antibacterial and antifungal properties of the materials were found satisfactory by Bertolini[15] following experiments with microbes most commonly encountered in infected teeth.

Zerosi[16] investigated the effects of the materials on residual human pulp tissues with which they had been in contact for some time and reported excellent tissue tolerance.

He also amputated the pulps of young monkey teeth with incomplete root formation, severing the tissue at some distance from the apical foramen, and applied $N_2$ cement against vital tissue remaining in the canals. Histological observation showed a zone of reaction in close proximity to the medication, followed in the deeper portion by a zone of hyperaemia and some formation of osteoid and osteo-cemental tissues.

Rowe[17-19] has used these materials extensively and with excellent clinical success. In bacteriological tests he found them superior to other commonly used materials. Histological studies on extracted human teeth confirmed the findings of Zerosi. Close to the medication Rowe found a zone containing pulp debris and tissue fixed by the $N_2$ (sclerotic zone). Under the sclerotic zone he found pulp tissue normal in appearance with a hard tissue barrier being formed. Histological studies by Schönherr and Brauer[20] showed identical results.

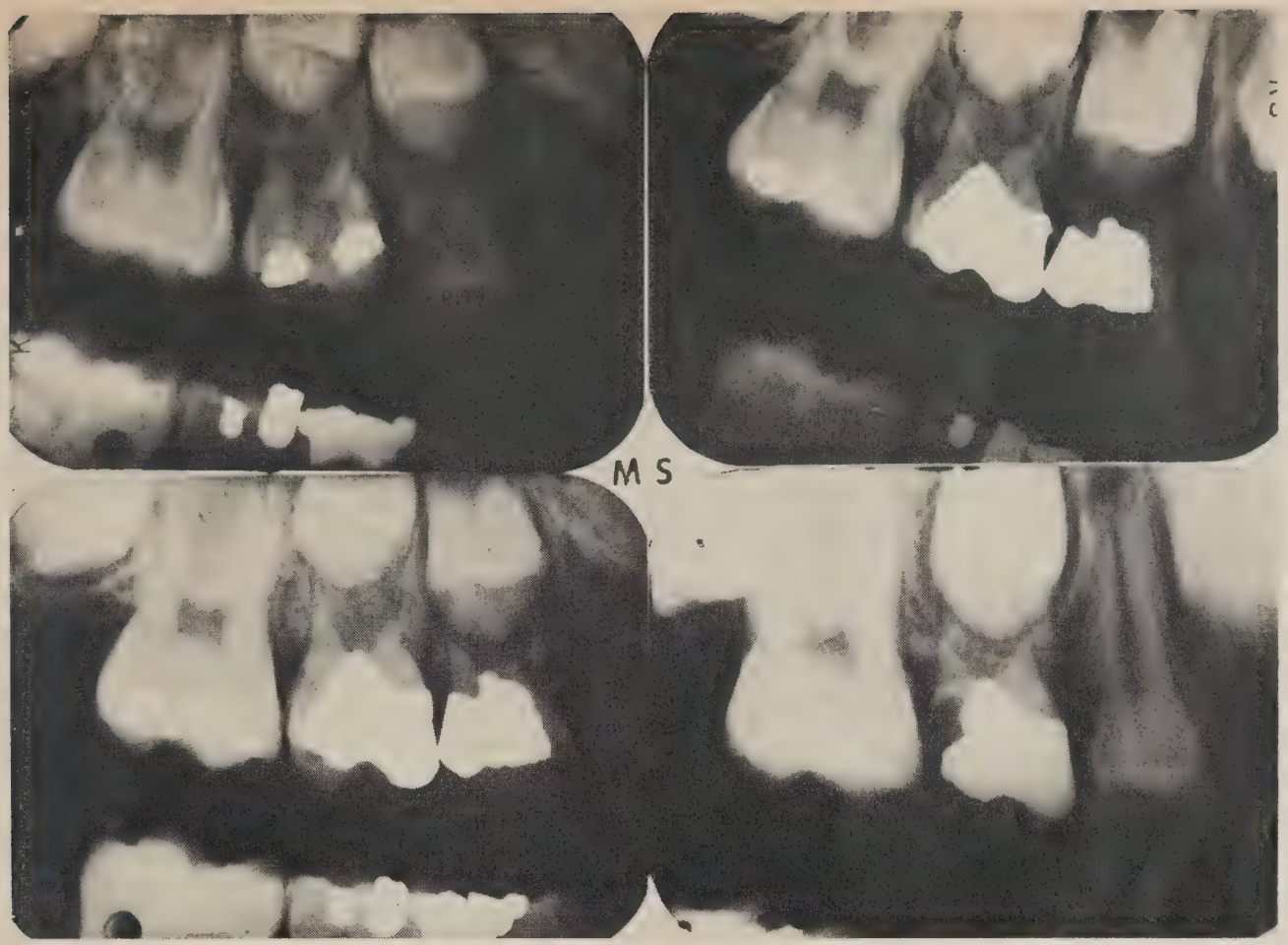


Fig 1

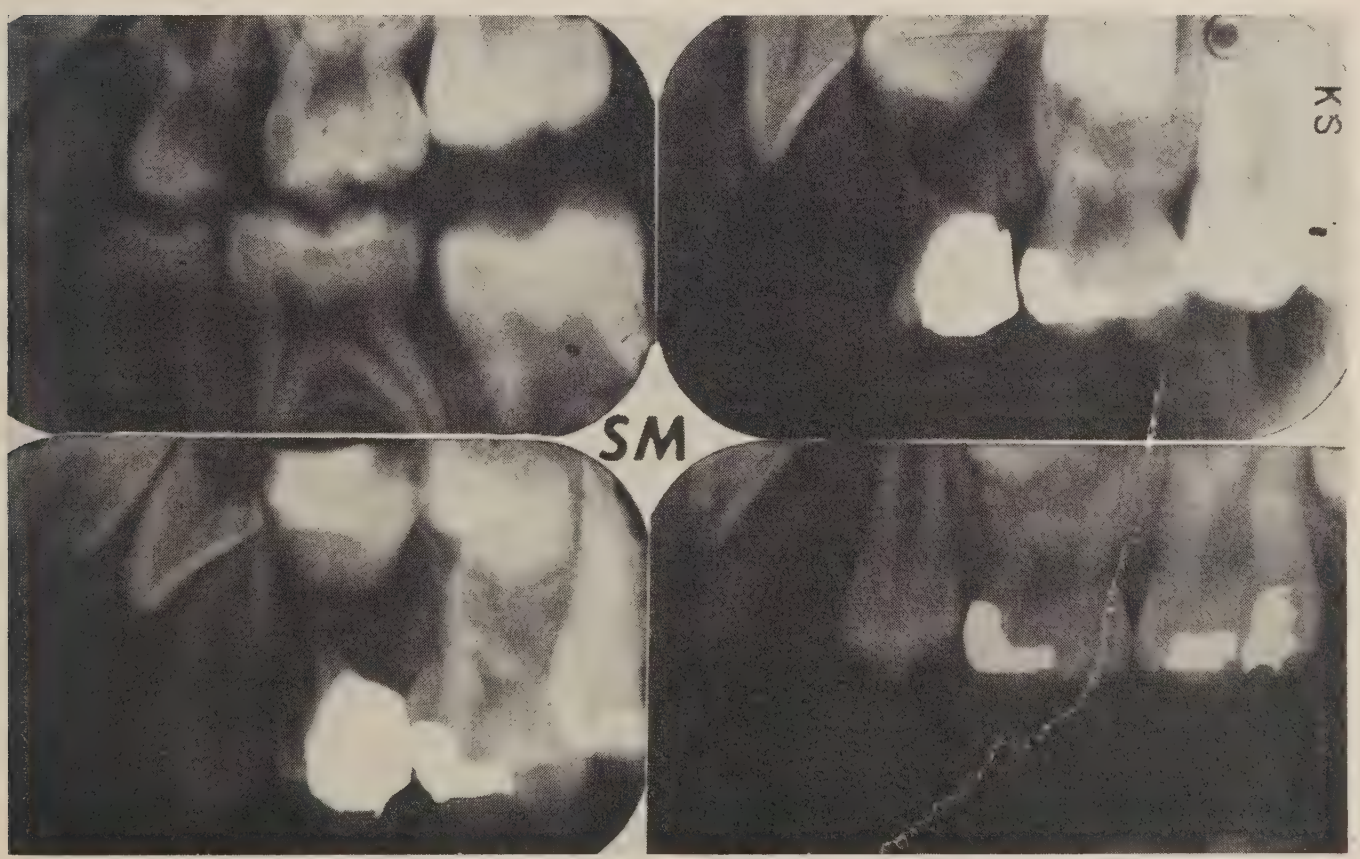


Fig 2

Guttuso[21] implanted $N_2$ and other endodontic drugs in connective tissue. An unnamed consultant of the Council on Dental Therapeutics of the American Dental Association[22] implanted $N_2$ in muscle tissue. Tissue irritation resulted in both instances.

Some of this evidence was cited by the Council in a special report rejecting the $N_2$ materials.[22] Rowe,[17] discussing these findings, argued that valid histo'ogical judgement of a root canal sealer was only possible from sectioned teeth which had been filled with the material for a reasonable period of time. In his own studies,[19] he investigated teeth which had been treated two years earlier, while one of Schönherr's cases was treated six years before extraction.[20]

Anderes[23] used pulpotomy and $N_2$ in treating infected but still vital fractured incisors with incomplete root formation. The roots continued to develop until they were fully formed but the root canals appeared obliterated on control radiographs. He ascribed this to the formation of calcified tissues as reported in the histo'ogical study by Zerosi.[16] That root formation was able to continue would indicate that tolerance of pulpal tissues for these materials is excellent.

After three years' experience with the $N_2$ materials in permanent teeth, Lernieux[24] used them for pulpotomies in vital primary teeth. His control radiographs showed satisfactory results.

Bucciarelli[25] treated vital and gangrenous primary teeth with $N_2$ in a manner similar to that described later in this paper. Radiographic examinations during the next five years showed no pathological changes at the apex or periapical regions of vital teeth treated. In gangrenous teeth fistulae disappeared following the application of the medication to the diseased root canal contents. No histological studies were made, but radiographs showed continuing root resorption and acceptable bone conditions.

## Materials and treatment methods

The $N_2$ materials are available in two types which vary in their setting time. Both the faster setting "$N_2$ Permanent" and the slower setting "$N_2$ Medical" consist of a powder and a liquid. A submission to the ADA Council on Dental Therapeutics in 1962 detailed the composition of each (Table 1).[22]

The following description of the pharmacological action of the preparations is taken from a later publication:[14]

"The antiseptic properties of the $N_2$ materials are due to the presence of a mercuric disinfectant, phenylmercuric borate ($C_6H_5H_{g2}BO_2.H_2O$) and of paraformaldehyde $(CH_2O)_n$ [polyoxymethylene or methanal], respectively 0.16 and 4.7 per cent in 1Gm $N_2$ powder. These antiseptics are borne by a zinc oxide-titanium oxide-eugenol-rose oil cement with addition of neutral metal salts for increase of wall adhesion, improving the radiopacity and regulation of the setting time and coefficient of hardening. . . . The results of analyses of the finished material may differ as some constituents react together during the process of fabrication. $N_2$ Permanent and Medical have similar ingredients and differ only in their . . . setting time which is, for $N_2$ Medical, longer than that of $N_2$ Permanent. This was done . . . to obtain an increased and long lasting dressing action of the Medical paste."

**Composition of $N_2$ materials** **Table 1**

| Powder | | Liquid | |
|---|---|---|---|
| Constituent | % | Constituent | % |
| $N_2$ Permanent | | | |
| Zinc oxide | 72 | Eugenol | 92 |
| Barium sulphate | 12 | Rose oil | 8 |
| Titanium oxide | 6.3 | | |
| Paraformaldehyde | 4.7 | | |
| Calcium hydroxide | 0.94 | | |
| Phenylmercuric borate | 0.16 | | |
| Unspecified | 3.9 | | |
| $N_2$ Medical | | | |
| Zinc oxide | 8.3 | Eugenol | 92 |
| Titanium oxide | 75.9 | Rose oil | 8 |
| Barium sulphate | 10 | | |
| Paraformaldehyde | 4.7 | | |
| Calcium hydroxide | 0.94 | | |
| Phenylmercuric borate | 0.16 | | |

Teeth for this study were selected from children attending the author's private practice and the McGill University Dental Clinic, all in good health and with a normal medical history.

All primary molars with exposed pulps were divided into two categories:

1. "Vital" teeth. These teeth were only moderately affected by the exposure as evidenced by a lack of severe symptoms, absence of clinical and radiographic findings indicating severe pulp breakdown, and bright red bleeding on penetrating the pulp chamber.

2. "Non-vital" teeth. Pulps in these teeth had suffered severely from exposure as evidenced by one or more of the following manifestations: severe, spontaneous pain of varying duration; cellulitis; elevated temperature; adjacent swelling or fistula; mobility; sensitivity to manipulation; radiographic evidence of massive exposure, thickened periodontal membrane, bifurcation or periapical bone involvement; pus or dessicated necrotic material in the pulp chamber.

Teeth with extensive loss of bone trabeculation between or around their roots, and those whose roots were more than half resorbed, were excluded from the study.

The teeth were treated as follows:

*Vital teeth* — Carious material and most of the dentine over the pulp chamber were removed using a high-speed air turbine with water spray. Following rubber dam application the cavity preparation was refined and the roof of the chamber was cut away with slow-speed burs. Pulp tissue was removed from the chamber with round burs and spoon excavators, and from root canals as far apically as an Ash 246 spoon excavator would permit. In some instances it was necessary to fortify anaesthesia by injection into the pulp. The pulp chamber was cleaned with cotton pellets, dipped in Dakin's Solution in most instances. When necessary, bleeding was partially arrested by applying a cotton pellet with local anaesthetic solution against the pulp stumps.

$N_2$ Permanent, using one drop of liquid and mixed to a very thick consistency, was deposited on the floor of the pulp chamber and gently pressed to place with a cotton pellet dipped in excess powder. Slight seepages of blood between the mixture and the walls of the pulp chamber were disregarded. The mix was allowed to set for five minutes and covered with a very thick mix of zinc phosphate cement. This was condensed, starting at the periphery and working toward the centre, thereby minimizing the escape of any unset $N_2$ material. When set, the zinc phosphate cement was covered with a permanent restoration at the same or at a subsequent appointment.

Prior to use, all instruments were immersed in aqueous benzalkonium chloride 1:1,000 for at least 20 minutes. Cotton pellets were used as supplied by the manufacturer. Strict sterility was not observed.

*Non-vital teeth* — The preparation of the tooth and evacuation of the pulp chamber were as described for vital teeth, but in some instances the roof of the pulp chamber and its necrotic content were removed with the air turbine. Local anaesthesia and rubber dam were used in most cases. The root canals were emptied as far apically as an Ash 246 spoon excavator would permit. Canals were not enlarged or filed.

A creamy one drop mix of $N_2$ Medical was deposited on the floor of the pulp chamber and gently pressed to place with a cotton pellet dipped in excess powder. A fairly thick mix of an accelerated zinc oxide-eugenol cement was placed over this layer.

The cement and most of the $N_2$ Medical were removed under rubber dam at a second appointment anywhere from one week to one month later. Any $N_2$ Medical that had been pressed deeply into the root canals was left there. A stiff one drop mix of $N_2$ Permanent cement was deposited in the pulp chamber and pressed to place with a cotton pellet dipped into excess powder. This was followed by a layer of zinc phosphate cement and a permanent restoration.

In seven instances $N_2$ Medical was omitted and $N_2$ Permanent was used instead. In two of these cases the pulp chamber was completely dry and odourless and there was no evidence of any bone involvement. Two others were treated under general anaesthesia and a second appointment did not appear feasible. The remaining three cases were the last ones treated in the series, and $N_2$ Permanent was used because no $N_2$ Medical was available.

In patients who remained available for observation, treated teeth were examined clinically and radiographically at regular intervals.

Histological examinations of exfoliated or extracted teeth were not performed.

## Results

Forty-six teeth were assessed at the end of the observation period. Of these, 19 were regarded as vital when treated, and 27 were considered non-vital.

For purposes of evaluation, non-vital teeth were subdivided into two groups: 16 with periradicular bone involvement as evidenced by radiographs or a fistula and 11 without bone involvement (Table 2). In applying such criteria it must be kept in mind that the radiographic appearance of supporting bone may not accurately portray actual conditions, especially of cancellous bone.[26]

Findings were considered satisfactory if tooth crowns were intact and radiographs indicated healthy supporting bone and normal root resorption.

Of the five vital and two non-vital (without bone involvement) teeth which exfoliated spontaneously, one was succeeded by a healthy well positioned bicuspid at age eight; four others had healthy successors at age nine, and two had them at age 9½ — this being the early limit of the normal eruption period of these teeth (Fig 1).[27] Thus premature loss of teeth treated by pulpotomy is sometimes followed by early eruption of the permanent successors, a finding which was also reported by Nacht[4] and Andrew.[10]

The one non-vital tooth with bone involvement which exfoliated on its own was a mandibular molar. Early films of this tooth displayed extensive interradicular bone damage, but follow-up radiographs showed some attempt at rebuilding bone following treatment. However, the permanent successor erupted quickly, replacing the treated tooth 20 months after the pulpotomy, when the patient was only 7½ years old. Its roots were still incomplete at this time but developed normally thereafter.

Six of the eight teeth with unsatisfactory periradicular response were extracted. The other patients did not return to the clinic following their re-examination. Two maxillary first molars, extracted at age eight and nine respectively, were succeeded five and eight months later by healthy well positioned bicuspids (Fig 2). One patient had a mandibular second molar extracted at age seven. A slightly rotated but healthy bicuspid erupted at age 10 in this child.

Three other patients, whose mandibular teeth were extracted at ages 4½, 6½ and seven, were still with-

**Clinical results of pulpotomy and $N_2$ therapy in 46 primary molars** **Table 2**

| Result | Vital teeth | Non-vital teeth: Without bone involvement | Non-vital teeth: With bone involvement | Total |
|---|---|---|---|---|
| Treated primary tooth and surrounding tissues in satisfactory condition (elapsed time in months) | 14 (10-52) | 9 (14-60) | 7 (11-65) | 30 |
| Healthy, well positioned permanent successor erupted after exfoliation of treated tooth | 5 | 2 | 1 | 8 |
| Treated primary tooth and surrounding tissues in unsatisfactory condition | | | 8 | 8 |
| Total | 19 | 11 | 16 | 46 |

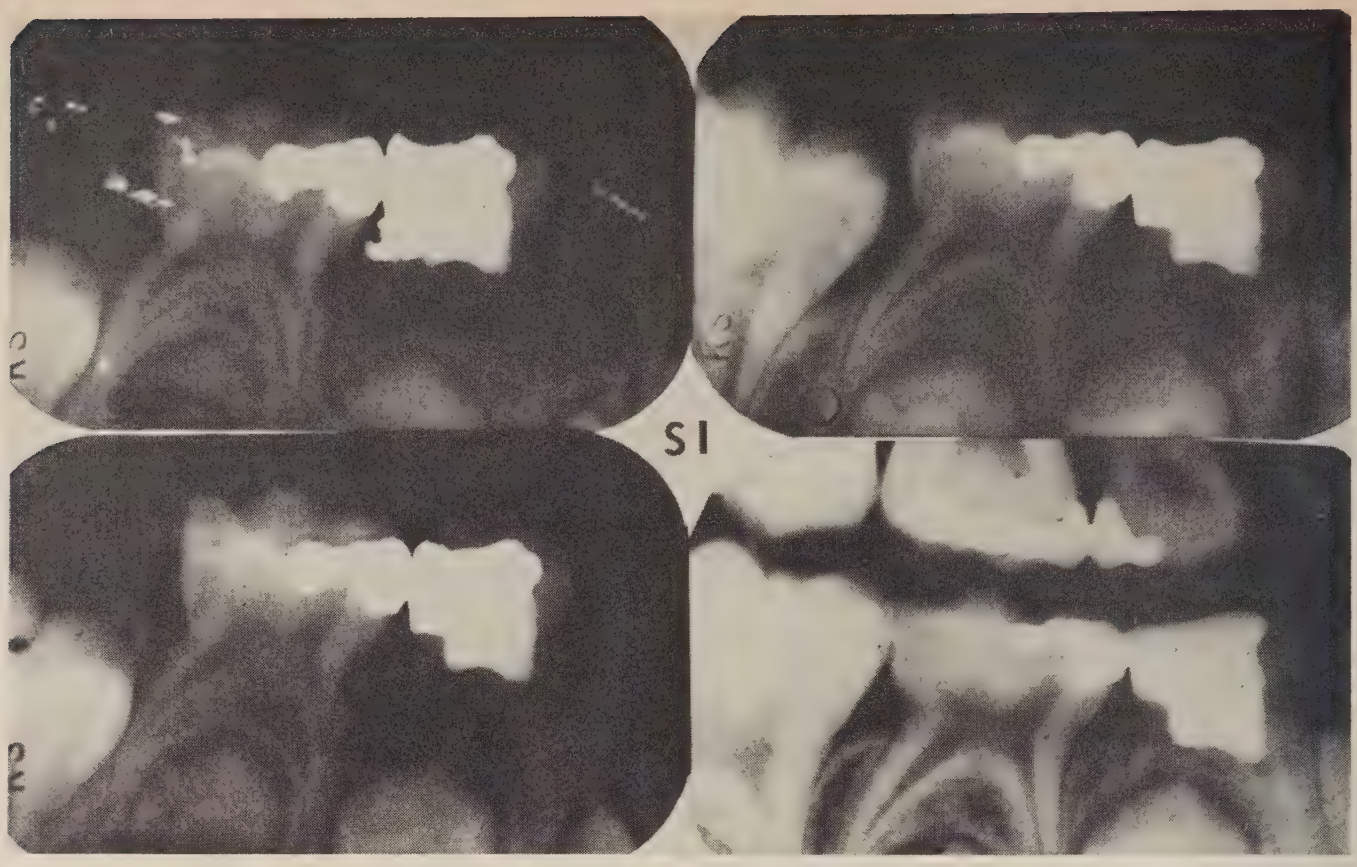

Fig 3 Progressive radiographs of a left mandibular first primary molar with pulp exposure. A large fistula originated from this tooth. The patient also had a mild cellulitis. The fistulous tract was scraped and a pulpotomy was performed, using $N_2$ Medical and a temporary cement. One day later the cellulitis had subsided. The dressing was replaced one week later by $N_2$ Permanent and an amalgam restoration. The fistula was healing at that time. The postoperative radiograph (top left) shows extensive bone destruction around the distal root. A radiograph taken nine months later (lower right) shows complete reversal.

out successors at the end of the observation period when they were 5½, 8½ and nine years old. All of them appeared normal on the radiographs, and those of the two older children were on a normal eruption path.

## Discussion

The results suggest that the $N_2$ materials can arrest the progression of disease from the infected pulp chamber of a primary tooth to the supporting tissues. Apparently, they produce conditions in the tooth which prevent it from becoming a source of irritation for the surrounding area.

This would justify their use in primary teeth where the coronal pulp is still vital as well as those where most pulp tissue has been destroyed but bone damage, as determined by radiographs, is not yet evident.

All 30 teeth in these two categories maintained satisfactory supporting tissues and experienced normal root resorption for periods of observation ranging up to 60 months. Seven teeth exfoliated spontaneously and were succeeded by healthy and well positioned bicuspids. Others were still in place at age 12 but showed normal resorption patterns.

These findings are comparable to those reported for vital pulpotomies with formocresol preparations and are certainly superior to results obtained with calcium hydroxide products.

Great progress could be made if it were possible to achieve conditions in a non-vital primary tooth which would arrest its toxic effect on the surrounding tissues and allow the patient's defence mechanisms to reverse the damage incurred by the supporting bone.

If this could be done by applying medication to the tissue remnants in root canals without provoking a side reaction, it would justify the retention of non-vital teeth until their normal exfoliation, especially if root resorption progressed normally and there were no interference with the normal eruption of permanent successors.

In eight cases out of 16, the $N_2$ products apparently produced conditions in the treated teeth which brought about a reversal of damage incurred by the supporting bone. Moreover, the antibacterial action of these drugs proved sufficiently effective to reverse four actual instances of cellulitis (Fig 3).

Shiere and Frankl,[28] following a study of 503 cases, have called for the removal of all untreated non-vital primary teeth to avoid potential damage to permanent successors and interference with their normal eruption. However, different conditions may apply to teeth treated as described in this paper.

In the present study all bicuspids which succeeded treated vital and non-vital teeth displayed normal morphology, calcification and root development. There were no instances of ectopic eruption. As mentioned

earlier, three of these permanent teeth succeeded primary predecessors which were extracted because of the persistent unhealthy radiographic appearance of their supporting tissues.

In those instances where unsuccessfully treated non-vital teeth were removed prematurely and permanent successors had not yet erupted, the radiographic appearance of the permanent teeth and the surrounding tissues was normal.

This is encouraging since the major consideration in the endodontic treatment of primary teeth must be the continued health of the supporting tissues and the integrity of the permanent successor.

Consequently, the findings in this study suggest that treating non-vital teeth, even those with some bone involvement, is not too hazardous as long as the patient enjoys good health and is available for regular observation.

As for damage to the enamel of the successor tooth, the question arises whether the actual injury occurs early following infiltration of toxic substances into the surrounding tissues or only after the disease process has continued for some time.

If the injury is an early phenomenon, removal of the offending primary tooth would not correct the resulting damage. But its extent may conceivably be confined if normal (radiographic) periradicular conditions can be restored. The risk of further damage may then be nil or minimal even if the pulpotomy fails and the primary tooth must be removed shortly thereafter.

In any event, the automatic removal of all non-vital primary teeth seems open to question.

## Summary and conclusions

Pulpotomies were performed in 46 primary molars with varying degrees of pulp injury in an attempt to maintain or restore the supporting tissues of these teeth. A commercial formaldehyde preparation, $N_2$, was used as medication over the tissues remaining in the root canals. Strict sterility was not observed in the treatment procedures.

Radiographic evidence indicated a successful outcome in 19 vital teeth and 11 non-vital teeth which had not suffered damage to the supporting tissues. Seven of these teeth exfoliated and were succeeded by healthy well positioned permanent bicuspids.

In seven out of 16 non-vital teeth with pre-operative bone damage there was a reversal of this condition after pulpotomies were performed. One of these teeth exfoliated prematurely, but was followed within 20 months of pulpotomy by a healthy well positioned bicuspid. Three other teeth which succumbed despite treatment were also succeeded by healthy and well positioned bicuspids.

On the basis of these clinical observations:

1. The $N_2$ products apparently arrest the progression of disease from the infected pulp chamber of a primary tooth to the supporting tissue.

2. They may be useful in vital primary teeth and in primary teeth which have lost most of the vital pulp tissue but have so far escaped frank bone damage.

3. There is some indication of an ability to reverse bone damage caused by non-vital pulps of primary teeth. This deserves further exploration.

4. The automatic removal of all primary teeth whose pulps have lost their vitality seems unjustified.

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# Reviews / Analyse

## Annotations

### Dental Health Education

*Geneva, World Health Organization (Technical Report Series No 449), 1970. Available from the Queen's Printer for Canada, Ottawa. 28 p. $0.60*

The world-wide prevalence of dental diseases is a constant reminder of the almost universal need for effective dental health education. In many countries, intensive programs have been conducted for long periods in schools and other settings, but the results have fallen short of expectations. It is clear that more effective approaches to dental health education are urgently needed. In this recently published report a WHO Expert Committee reviews the current status of dental health education and considers ways in which this education might be extended or improved.

A brief account of the basic facts about dental caries, periodontal disease, malocclusion and other dentofacial anomalies, oral tumours and accidents affecting structures of the oral cavity is accompanied by an assessment of the implications of these conditions for health education.

The scope and objectives of education in dental health are delineated. Principles are set out for developing such education and for planning, implementing and evaluating dental health education activities and programs. Consideration is also given to the training of personnel for these activities and to research needs. The report ends with a number of conclusions and recommendations.

### Compendium of Pharmaceuticals and Specialties (Canada) 1971

*F. N. Hughes and G. N. Rotenburg. Ed 6. Toronto, Canadian Pharmaceutical Association Inc, 1971. 930 p. $10.00*

This sixth edition of Canada's leading reference text on pharmaceutical products has again been revised to describe virtually all marketed Canadian prescription drug and specialty products in convenient alphabetical sequence.

Each product monograph contains, besides the title and therapeutic classification, the following headings: chemistry, pharmacology, indications, contra-indications, precautions, adverse effects, overdose, symptoms, treatments, dosage, and how the product is supplied.

The *Compendium* again includes the customary coloured sections. The pink pages (Prescribers' Guide and Therapeutic Index) list manufacturers' products under therapeutic headings. The green pages section (Non-proprietary Names Index) links generic names with the chemical names and brands and their manufacturers. The buff pages (Trade Names Index) show for each listing a generic name and are the reverse listing of the green pages section.

A white reference section at the back of the book gives a list of Canada's poison control centres, a Latin prescription terminology and *Compendium* abbreviations, information on calculation of drug dosage in children, and other useful information.

### Handbook of Regulations of Dental Practice

*London, Fédération Dentaire Internationale, 1970.*

This handbook with information about 101 countries provides a guide to dentists who wish to practise in a country other than their own.

It does not contain the complete and authentic dental and legal requirements for practice in every country. Readers who require more information should therefore write directly to the country concerned.

No mention is made of temporary or provisional registration. Many countries permit dental graduates from abroad to work on a temporary basis in dental hospitals and institutions without complying with the full regulations for permanent practice.

The handbook shows that reciprocal licensing arrangements are at present confined within the countries of Central and South America, Scandinavia and the British Commonwealth. They will also come into force in the European Economic Community in 1971.

### L'orthodontie française: volume 40 — 1969

*J.-E. Heskia, rédacteur. Lyon, France, Edition de la Société Française d'Orthopédie Dento-Faciale, 1969. 427 p. Illustré. 100F.*

Compte rendu du XLII[e] Congrès annuel et de la 2[e] session annuelle de la Société Française d'Orthopédie Dento-Faciale tenus en 1969. Intéressera surtout les orthodontistes qui veulent se renseigner sur les développements de leur spécialité en Europe. Contient des communications en français et en anglais.

### Orthopédie dento-faciale

*Michel Chateau. Paris, Julien Prélat, 1970. 641 p. Illustré. 98F.*

Parmi les disciplines auxquelles doit s'astreindre l'étudiant en odonto-stomatologie, l'orthodontie est sans doute celle qui a le plus de chances de lui causer du découragement. C'est elle aussi qui a rebuté le plus grand nombre de praticiens, à la suite de difficultés imprévues et d'échecs multiples.

Presque tout se passe comme si c'était une science mystérieuse, horriblement compliquée, réservée seulement à quelques initiés.

C'est qu'en effet l'orthopédie dento-faciale traverse depuis 30 ans une sorte de crise évolutive. Une foule de travaux parus en divers pays et particulièrement aux Etats-Unis est venue jeter le doute sur les bases mêmes de l'orthodontie. Les phénomènes de croissance, les réactions immédiates et lointaines de l'organisme à nos traitements se révèlent beaucoup plus compliqués qu'on ne le supposait jusqu'ici. Les méthodes et les idées s'opposent; on ne sait plus qui croire.

Il fallait donc, pour l'étudiant et pour le praticien déjà installé, un ouvrage clair, relativement bref, apprenant essentiellement à établir un diagnostic, à reconnaître les dysmorphoses qu'on peut traiter soi-même de manière simple et à mener à bien ces traitements, quitte à envoyer à l'orthodontiste spécialisé certains cas difficiles. C'est cette base solide que ce livre se propose d'établir.

Tant de choses inutiles ont été décrites! A supposer même qu'elles soient remarquables, ce serait folie de les demander à l'étudiant, car le rôle de l'enseignement n'est pas d'apprendre tout, ni même beaucoup de choses, mais les notions utiles, qui ont fait leurs preuves: les étudiants ont déjà tant de mal à savoir l'essentiel!

Nous avons évité la description ou seulement donné un bref aperçu d'une quantité de méthodes diagnostiques et thérapeutiques peut-être excellentes, mais dont l'intérêt pratique ne justifie pas la complexité. Qu'on ne cherche pas ici le portrait des 36 distaleurs décrits, mais de trois ou quatre bons, ni de 30 méthodes d'analyse téléradiographique, mais d'un bon groupement.

Plutôt que de donner toutes les "recettes" pour tel ou tel cas particulier, nous préférions faire comprendre et permettre au lecteur, intelligent, évidemment, de reconstituer lui-même ce qu'il doit faire en toutes circonstances.

Un volume triple de "recettes" et descriptions, sans la même intelligence du lecteur, ne formerait d'ailleurs jamais un bon orthodontiste.

# A new format for the Board of Governors

New rules will govern the participants and spectators when they square off for the opening play at the Board of Governors' meeting next September 27. Freshly minted by-laws, enacted last year, will guide the 20 voting governors who must grapple with issues and reach decisions upon matters which will affect profoundly the structure of the profession and its service to society.

It is essential to the well-being of any profession that it should have a strong professional association with a representative governing body. The Board is the CDA's governing body and its decisions can and do have far reaching effects on the welfare of members of the profession. Many of the beneficial circumstances which surround a dental practitioner today are the result of the work, over the years, of the CDA. These circumstances stem from the activity of the Association under the direction of the Board of Governors. Further changes which are in prospect and which must come about in the next few years will place an even heavier responsibility on the Board this year.

Because of the multiplicity of the subjects which it has to consider, the Board needs a mechanism whereby individual members of the Association can express views, suggestions and anxieties before the Board determines policy. This role is traditionally filled by reference committees. The committees were formerly composed of as many board members and individual association members as were present on the occasion. Each committee had a specific frame of reference—such as research, auxiliary services or dental education—and all reports or resolutions were referred to the appropriate committee where individual members could air their views. After due consideration, recommendations in either original or amended form were sent back to the Board where the individual members had a further opportunity to bring persuasion to bear before the fate of the various issues was sealed.

Though this procedure is highly democratic, it is also painfully laborious—a circumstance which is aggravated by the many contentious issues which the Board has had to resolve in recent years. The new by-laws seek to remedy this flaw by speeding the flow of business while preserving the influence which any member can bring to bear upon the Association's decision-making apparatus.

Reports from the Association's agencies will again be referred to reference committees as in former years. But this time, each committee will consist of only five members appointed by the president. Its chairman will be a member of the Board; the other four will be drawn from the Executive Council, the Board, dental education and local practising dentists.

At specified times each committee will conduct open hearings on the topics assigned to it. All members of the Association may attend these sessions at which the committee will receive opinions on the matters at hand. These will be evaluated in subsequent closed sessions at which the committee's decisions are made. In this way each reference committee will recommend to the Board of Governors an appropriate course on the matters which are placed before it.

It is important to emphasize that the reference committees will not prevent the Board from taking action on any matter which has been presented; nor will they automatically accept the opinions of those who testify during the open hearings. Their task is to weigh all the factors and all the information in order to devise recommendations that will best serve the interests of the public and the profession. The new rules permit them to do this effectively and with dispatch.

It should be equally clear that board members are not delegates. It is to be expected that they will acquaint themselves with the views of their constituents and will make them known during the debates. From the experience and even the difficulties of individual practitioners have arisen matters which the Board has considered and which have resulted in action to benefit the whole profession. But board members are not bound by local allegiances to vote in any special way on any matters that may come before the Board. It is their right and their duty, after listening to or participating in the debate, to vote as common sense and conscience dictate. In this way the will of the majority prevails with scrupulous regard for the opinions of all concerned.

# Dentisterie conventionée

L'entente signée le 11 mars dernier entre l'Association des Chirurgiens-Dentistes du Québec et le ministère des Affaires sociales signale le début d'une ère nouvelle dans les relations économiques entre la profession, le public que nous servons et le gouvernement. Une dentisterie conventionnée n'est naturellement pas au goût de chacun, mais tous les développements sociaux des dernières années font croire que le phénomène est irréversible.

Les négociateurs de l'ACDQ doivent être félicités d'avoir mené à bien des pourparlers difficiles, dans des conditions adverses. Chaque séance de négociation était un nouveau pas à franchir, à apprendre, à maîtriser. La réputation de notre profession en est sortie non seulement intacte, mais réhaussée par le digne comportement de nos représentants. La convention qui a finalement été signée est un document que toutes les autres provinces se doivent d'étudier.

Le document est d'une importance primordiale parce que c'est le seul au Canada à avoir incorporé un système de critères qui contrôle le flux inutile des patients vers les hôpitaux pour l'extraction des dents. Les autres provinces, qui n'ont pas négocié d'entente, se sont vu imposer unilatéralement par leurs gouvernements un régime de chirurgie dentaire en milieu hospitalier où il n'y avait aucune restriction et qui a déjà mené à des abus. Le régime québécois n'a évité cette erreur fondamentale qu'après maints efforts de la part de la profession qui a présenté des arguments logiques pour prouver la folie d'ouvrir les hôpitaux impunément à la chirurgie, c'est à dire surtout aux extractions des dents.

Cet objectif a été accompli sans avoir à employer de grèves ou de "journées d'étude". Plusieurs autres professions au Québec ont, dans le passé, été forcées d'interrompre leurs services. Rappelons ici les infirmières de l'hôpital Ste-Justine (1964), les ingénieurs de l'Hydro-Québec (1965-66), les professionnels à l'emploi de la Fonction publique (1966), les radiologistes (1967), les enseignants (1966-67) et finalement les médecins spécialistes (1970).

En dépit des différences entre les diverses professions, elles présentent toutes certaines caractéristiques en commun: une formation supérieure et spécialisée, l'autonomie d'un ordre professionnel et un code de déontologie. Un grand nombre de professionnels sont salariés. Quatre-vingt quinze p.c. des ingénieurs, 93 p.c. des économistes, 85 p.c. des comptables et 62 p.c. des architectes. Mais il est surprenant de découvrir combien de membres des professions libérales sont également salariés. Seulement 69 p.c. des avocats et 64 p.c. des médecins ont une clientèle privée, tandis que 91 p.c. des dentistes pratiquent en cabinet.

La dentisterie conventionnée maintient, du moins pour le moment, le système de l'exercice libéral de notre profession, et des honoraires sont payés par le gouvernement pour les services accomplis par le praticien, une distinction qu'il est important de maintenir. De fortes pressions se feront sentir dans un avenir rapproché afin de placer les professionnels de la santé dans un système salarial. Ce sera à nous de prouver au public et aux gouvernements que la profession peut fonctionner efficacement dans un système libéral. La dentisterie actuelle devra se transformer et se diriger vers les cabinets groupés, l'emploi massif des auxiliaires et une orientation vers la prévention plutôt que les traitements.

Si la profession ne veut pas évoluer, des forces extérieures inexorables imposeront leurs solutions.

# Letters/Courrier

*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association Dentaire Canadienne. Vous êtes invités à participer à cette section du Journal.*

### Three-rooted mandibular molars

The paper by Curzon and Curzon (February Journal) on the subject of three-rooted mandibular molars appeared in print at almost the same time as a paper on the same subject by Souza-Freitas, Lopes and Casati-Alvares (Oral Surg 31:274, Feb 1971).

The Canadian authors state that the anomaly can only be determined by examination of an extracted tooth, but the Brazilian study is, in fact, based on a radiographic survey. Souza-Freitas et al used two periapical molar views to assist in diagnosing the condition.

Our combined academic experience in reviewing many routine periapical radiographs in teaching institutions as well as the clinical experience by one of us (C. R. Castaldi) in treating a small number of Treaty Indians at Ninette Hospital in Manitoba and a Japanese child with haemophilia who required bilateral removal of three-rooted mandibular first permanent molars leads us to support radiographic evidence as documented by the Brazilian authors.

It is also interesting to note that Worth[1] stresses the radiographic importance of exposing two periapical radiographs of every tooth in question in order to minimize the possibility of overlooking any dental anomaly. The importance of this practice cannot be over-emphasized, particularly in the presence of prospective surgical, periodontal or endodontic treatment.

Regardless of the differences in views of these two author groups and related clinical implications, one must commend both papers as "labours of love." Few people are interested in the subject and even fewer would take the trouble to do a detailed study and then report it.

The need for closer liaison between physical anthropologists and dentists is quite evident. Often, the only good remains of ancient man are the teeth. To relate modern man to ancient populations and migration of population groups must be a difficult and laborious task. Data such as that published by these two dental research groups could perhaps speed the work of the anthropologist.

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*University of Connecticut Health Centre*
*Hartford, Conn 06112*

1 Worth, H. M. Principles and practice of oral radiologic interpretation. Chicago, Year Book Medical Publishers, 1963.

### Dental service corporations

Doctor P. E. Currie ("Second Thoughts about Contractual Participation in Prepayment Plans" in the March "Dialogue") speaks about using a "shotgun to kill an ant." Is the ant the dental service corporation he represents? It's my view that the ant is something bigger – an international complex backed by large unions that may require more than a "shotgun."

I loathe to even estimate the dollars it cost the Ontario Dental Association to investigate dental service corporations. In addition one must consider the personal costs to the over 25 Ontario dentists, each of whom spent several days out of his office in order to gain the background knowledge required to assess the proposal intelligently. After long, tedious and soul-searching discussions, the ODA decided to refuse a specific offer to form a dental service corporation. However, the doors are still open.

The ODA has counselled its members not to sign any contract with a dental service corporation until it has been studied and approved by the ODA Board of Governors. We have learned much from the experiences of the dentists in British Columbia, Alberta and Manitoba. At this time our advice to our members is not to sign. Of course we cannot prevent them from signing contracts or even from forming their own corporations if they so desire.

Doctor Currie asks us to "tell the world what we stand for, not what we condemn." I stand for: (1) educating the public about the methods of attaining and maintaining a healthy mouth and teeth; (2) continuing to urge governments to increase their effort in preventive dentistry and make full use of present knowledge, such as fluoridation; (3) expanding the duties of dental auxiliaries and allowing them to practise within a team environment captained by the dentist; (4) government action to implement the ODA Dental Health Plan for Children; (5) a free enterprise system of delivering dental care. It can do a better job than a socialistic system. Governments can impose the socialistic system on all of us, while dental service corporations can impose it only on their own member dentists.

I supported financially the now defunct CDSPI postpayment plan and the Associated Dentists' Cooperative postpayment plan. I also have supported and still do support the ODA Dental Welfare Plan by accepting a pro-rated fee. I support it by accepting a lesser fee and by paying provincial taxes. We are presently re-negotiating our contract with the Ontario government so that our members will no longer be asked to subsidize a dental program for welfare recipients,

I refuse to subsidize a plan for the benefit of a select segment of society, namely union or other club members, who can afford good dental care, but who place a low priority on it.

You can fault us for not acting sooner or more vigorously on many of the mentioned issues, but organization and communication among our individual dentists, provincial dental associations, and even local dental societies have not been the greatest. Canadian dentists have been and will continue to be involved in seeking better ways of delivering dental care. Some current examples are: (1) the Saskatchewan study with the New Cross dental auxiliary in school dental clinics; (2) the Prince Edward Island study with dental hygienists placing restorations, both in school clinics and in private offices; (3) the British Columbia and Saskatchewan studies to extend the duties of dental assistants to include rubber cup prophylaxis and other preventive measures; (4) the BC and Manitoba denture clinics.

The ODA will this summer embark on a project similar to PEI's and BC's because our members are convinced of the need for such a study as it relates to the needs of our province.

"We will really never know until we try," but let's learn from the mistakes of others, then we can go out and make new mistakes; but we're fools if we repeat the mistakes that others have made. Our programs will be an improvement over those we're copying because, hopefully, we'll find some alternatives to their mistakes.

*Ivan Hrabowsky, DDS*
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**Reader's critique of a book review**

I would like to comment on Doctor J. R. Trott's review of Manson's *Periodontics for the Dental Practitioner* which appeared in your February issue.

In paragraph 3 he criticizes the author for being "unwilling to support certain new principles" and in the very next paragraph Trott states that, "The chapter on acute gingivitis has not been adequately revised for (Manson) condemns penicillin as a treatment for acute Vincent's infection." I emphatically agree with Manson, as do many other practitioners of periodontics, that there is no place for penicillin or any other antibiotic in the management of this disease. We have learned a lesson from patients who formerly went from one bout of Vincent's infection to another, leaning on the old crutch, penicillin. These unfortunate patients were never informed of the cause and proper management of their condition. The disease recurred and we stood by with a prescription pad, watching the periodontium disappear before our eyes. Had we taken the time to explain the aetiology, eliminate the local factors and control the bacterial plaque, we might have convinced these patients that the disease could be eradicated by their own efforts. This, in turn, would have motivated many toward prevention of its recurrence.

A further comment relates to Doctor Trott's inference that Manson's second edition is "untidy" because of the appendices dealing with the normal periodontium, aetiology and histopathology of periodontal disease, whereas the first edition dwelt on "how to do it" rather than "why." This is most unfair. Periodontal knives have never cured any periodontal disease. Such misconceptions about the mechanical considerations in periodontal therapy have been over-emphasized at the expense of the biological aspect. Unless patients are motivated to gain control of local aetiological factors, all therapy will fail. If Manson has therefore included essential information about aetiology, I think it should be a good book even though I have never viewed it.

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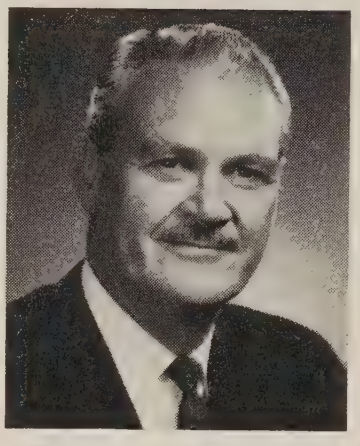
# EXECUTIVE DIRECTOR'S PAGE



**W. G. McIntosh, DDS**

**Wells Committee**

Last month I devoted the entire column to the report from the Ad Hoc Committee on Dental Auxiliaries, dubbed the Wells Committee.

Since then, the CDA's Auxiliary Services Council has approved a resolution commending the Wells Committee on Auxiliary Dental Services for its efforts.

The Auxiliary Services Council, which met at headquarters March 8 and 9, also agreed with the report's philosophy of extending the availability of dental services. These would be extended through expanding the services of formally trained dental auxiliaries.

But, while agreeing in principle with the objectives of the Wells Committee, the council identified several recommendations in which existing policies of the CDA and its corporate members are at variance.

At this meeting, the council did not want to go on record as opposing all or some of the Wells Committee recommendations. It felt its initial responsibility was to identify these variances, which numbered about seven or eight, to bring them to the attention of the corporate members.

As I urged last month, the corporate members should be studying this important report. They then should try to work out some minimum standards for educational programs and services that can be used across Canada.

The provinces have related but different approaches to the problem of developing and increasing the use of qualified dental auxiliaries. Without some basic stan-

dards to use as a guide, it would be impossible for the CDA to develop a portable, national certification program.

British Columbia has already certified dental assistants that have been trained and allowed to perform certain functions that are not permitted in other provinces. Saskatchewan and Prince Edward Island have set up test projects for various types of dental assistants, which are quite different from the BC approach.

### Dental Services Council

Co-ordination and uniformity were also the main topics at the CDA's Dental Services Council meeting held in March.

Because of the increasing number of prepayment and other types of dental plans, uniform systems of charting and coding must be developed. A uniform claims form for all dental services and a standardized coding system for dental procedures are desirable because of the growing trend to computerization in North America. The Dental Services Council has set up committees to study these proposals and I hope we will hear their reports by the annual meeting.

Last fall, the annual session of the Fédération Dentaire Internationale, in Rumania, approved a new two-digit system of designating teeth. It is a simplified system that overcomes language barriers, is capable of computer application and can be readily understood by dentists around the world.

In this issue, ODA President Ivan Hrabowsky and Jim Sim of St. Catharines, Ontario, collaborated in writing an article about the proposed two-digit system. I commend this excellent article and the application of the system to you.

The Dental Services Council endorsed the FDI system at its meeting on March 10-11. The council also set up a committee to plan CDA's participation in denticare or medicare plans. The council will look ahead to provide needed leadership in attitudes in this touchy area and propose objectives for the CDA. Two of the current important questions are: Is dentistry playing its proper role in medicare plans across Canada? Should not the profession study and try to develop the best structure for government-paid denticare across the country, rather than wait until government thrusts one upon us? I'm sure the answers are obvious.

The CDA must show leadership and cooperation to work out a system which is in the best interest of all Canadians and which is supported by the dental profession.

Newfoundland already has a plan which includes children up to the age of eight years and the province is talking about extending it to 12 years. Quebec's health minister has promised that a denticare plan will soon be approved in his province for children up to age seven. The time for the profession is now!

### Dentifrice promotion

A recent meeting, in Ottawa, of the National Advisory Committee on Dental Health, on which I have been privileged to serve a three year term, gave me an opportunity to raise a point with an official of the Food and Drug Directorate. It concerned the door-to-door promotion of cosmetic dentifrices. One such give-away promotion seems to be doing well.

Under the law, if a dentifrice is classified as therapeutic, it cannot be given away door-to-door, but a cosmetic one can. This gives the cosmetic tooth paste the inside track over a therapeutic one. If anything, the situation should be reversed, giving the therapeutic one the advantage to encourage better dental health.

The official was sympathetic and suggested that I write a letter to the director of the Food and Drug Directorate, which I have done.

### Newspaper columns

The Executive Council, which met March 22-24, approved the Communication Council's request to arrange for the distribution of a weekly English-language dental column for daily newspapers across Canada.

Acceptance of such a column by daily newspapers on an exclusive basis in their circulation areas would give the CDA an additional public relations boost to the 200 news columns already running in weekly newspapers. The Communications Council, which met March 17, is considering a personalized column for the dailies.

### Management study

The Thorne Group has completed a management study of the CDA, which was requested by the Board of Governors. The report recommended certain staff additions and a corresponding reorganization of responsibilities.

The Executive Council is trying to develop Association objectives complete with priorities and related costs. One of the main studies concerns the housing of headquarters. One consideration is a move to Ottawa.

The Executive Council has set up a small committee to study the priorities and costs. It will report back through the council to the Board of Governors at the annual meeting.

### Society notes

Before I became caught up in the numerous March business meetings of the Association, President Bill Spence and I attended the Sudbury and District Dental Society meeting in the nickel city on February 22.

And to close the month, the Spences and the McIntoshes had the pleasure of attending the 50th anniversary dinner party of the Mount Royal Dental Society at the Chateau Champlain in Montreal. McGill's new dean of dentistry, Ernest Ambrose, was made an honorary member, and MRDS President Edward Slapcoff presided at this festive occasion.

# Dialogue

*Federal contributions under the Canada Medical Care Act, which authorize payments to dentists for medically required in-hospital oral surgery, have come under fire in various quarters of the profession. To explore the issue, "Dialogue" invited three dentists to outline their opinions on this contentious issue. Doctor B. L. Bowden, secretary of the Newfoundland Dental Association, offers a viewpoint from the perspective of a CDA corporate member. G. M. Dundass, a Montreal general practitioner, has had a prominent role in organized dentistry in Quebec. A. E. Swanson, a Vancouver oral surgeon, is also chairman of the CDA Council on Hospital Services.*

## A necessary limitation

Retention of the "in-hospital" requirement definitely discriminates against dentists who do not have access to hospitals; it discriminates against patients who cannot get into the available but limited hospital facilities; and it discriminates against taxpayers who must pay more for fewer services.

It imposes inconvenience on the public, and it certainly restricts the patient's free choice of practitioner when such a patient has to be referred to an individual who has "in-hospital" privileges.

However, there are significant differences between the provinces, and these have an important bearing on the issue. One of the factors that influences our feelings in Newfoundland is that we have an extremely scattered population which has not had the opportunity to receive the dental education and orientation that may be present elsewhere in Canada. Consequently, Newfoundlanders too often resort to terminal treatment. I believe their educational outlook may improve if restorative treatment could be performed.

I would not like to see the "in-hospital" stipulation removed if this had the effect of simply transferring the present limited range of service from the hospital to the dental office. On the other hand, I would be quite happy to see the "in-hospital" restrictions lifted if the government of Canada were to foster comprehensive care including fluoridation, public education, preventive measures and insured restorative treatment. I believe my fellow Newfoundland dentists share this viewpoint which is based on our knowledge of the island and the people with whom we work.

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## A misplaced priority

Ruefully, many now realize that relief from the brutal implication of in-hospital oral surgery coverage may come only if and when complete, comprehensive dental insurance restores oral surgery to a more normal level of priority. The priority which it now enjoys is certainly incompatible with an objective of dental health.

The in-hospital limitation is being attacked because it inconveniences the public and limits free choice of practitioners. But are we, as a profession, really sincere in our desire to promote oral surgery as a priority? Are we really anxious to facilitate this service by coverage in private practice?

Dentistry can be proud of its efforts to publicize fluoridation as a priority service. What publicity should we now give to the fact that extractions are also covered?

Dentists concerned about their hospital privileges may welcome an all-out publicity campaign so that all of our patients will really know what their health insurance rights and privileges are. Many do not yet realize that they have the right to oral surgery coverage but not to coverage for preventive and maintenance care.

If we are sincere about surgery as a priority dental service, would we like to see Nancy Greene, Bobby Orr and "Rusty" Staub on TV extolling the virtues of the "prime" priority? They could mention our concern over unnecessary utilization of hospital services and stress how sensible the profession is about cost per extraction, efficiency and convenience to the public. Perhaps this could be done while showing the pastoral beauty of Canada with "quick-view" shots of private practitioners bearing satchels of forceps and taking "top priority" dental service all over Canada, shots of dentists canoeing, motorcycling, maybe even a para-drop.

Pity the Quebec parents as their province contemplates complete treatment coverage for children under age seven. What will happen to their older brothers and sisters if they suffer from troublesome primary or permanent teeth? They only qualify for "medically required in-hospital surgery." And "medically required" means literally anything — compassion, sympathy, non-cooperation for restorative service, even the persuasion that can be brought to bear by an irate, desk pounding parent. Our "priority" recommendations to government may get quite a workout in this regard once parents realize the full meaning of such a "humane" solution to toothache.

It has never been ethical to remove teeth without advising replacement. Is prosthodontics therefore the next priority of those who persuaded government to insure extractions? Surely they must have advocated, as a surgical aid, "prefabricated bandages" or "immediate dentures." Besides, think of the "package deal" and its publicity aspects! After all, immediate dentures do solve the emotional problems of many patients maimed by extractions. Surely they must qualify as "medically required." And by tying the dentures with the surgery we could exclude the mechanics.

Our national association was in the forefront in 1964-66, demanding that dentists be given the same right as physicians to perform in-hospital oral surgery under the federal Medical Care Act. But the "medically required" aspects have now been largely overlooked by provincial legislation. In Ontario, analysis of the utilization figures shows that 70 per cent of oral surgical fees are applied to the removal of erupted teeth and 20 per cent go to impactions and residual roots. Only 10 per cent are applied to the more serious

surgical services such as jaw fractures and cyst removals.

It is beyond belief that all of these extractions qualify as "medically required." Was the CDA promoting oral surgery as dentistry's top priority? I doubt it. But that is what happened.

Does the CDA now have cost utilization figures from experience elsewhere to support its view that this surgery should now be performed in private offices on such a priority basis (would total costs go up or down)? And will the CDA support those who now desire that immediate dentures be classified as "medically required?"

The crux of the matter is this: tooth extraction is irreversible. Consequently, a dentist must have the fortitude to refuse to remove a tooth that can be saved. He should acquaint his patient with the possible alternative to extraction, and he must clearly demarcate those extractions that are "medically required." Our dental associations should sustain him in these efforts, not thwart him by supporting a misguided priority. Licensing boards, in turn, must demand that diagnostic records, including required radiographs, be kept for five years.

Hospitals (which, incidentally, demand the patient's signature to a disclaimer for liability) should regard teeth in the same light as any other body tissue. Teeth extracted in a hospital should be subject to pathological investigation and review by the hospital's tissue committee.

Erupted teeth that can and should be saved by treatment and restoration do not qualify for federal contributions under the Medical Care Act. The CDA should therefore make representations to Ottawa and insist that provinces claiming federal contributions comply with the "medically required" aspects. This would be a truly useful contribution to the dental health of Canadians everywhere.

It is irresponsible for us to stand aside, leaving the taxpayers to pay for an accumulation of neglect. We cannot remain silent while government action reinforces the negative attitude that many of our patients have toward dental health.

It is just a matter of time until the validity of prosthodontics as a "medically required" adjunct to surgery will be tested in court. The consequent precedent will then determine the true implication of this service.

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## A token gesture

For several years now our political parties have espoused the cause of quality health care for all of the people irrespective of ability to pay for such services. One has to assume, within the context of the capitalistic, participatory-democracy system which we support, that our government leaders have responded to the desires of the people in legislating health care. Indeed, to challenge the concept philosophically would be analogous to questioning the institution of motherhood.

Suffice it to say, the Medical Care Act of Canada and the Medical Services Act of BC are law. We, as dentists, have been included in the service benefit coverage under medicare within certain carefully specified limitations. We have been included officially because ". . . during the debate on the bill, the question was raised as to whether provision should be made to include as insured services, services of certain kinds when not rendered by a medical practitioner, as for example, certain surgical-dental procedures." To make such provision the bill was amended.

Whether the amendment was induced by the dental or oral surgery lobby is open to question, but we assume that it was. It is transparently clear that it was never intended to include the full range of dentists' services under federal-provincial medicare from the outset. The cost to the public purse would have been prohibitive. However, by putting the in-hospital restriction on dentists' services, the federal government deliberately placed a tight, built-in budgetary limit on this aspect of insured services. In the words of the Governor-General in Council, ". . . the minister is of the opinion that the additional cost of providing such services will be extremely small."

Since the great bulk of dental service is properly rendered in the office of the general practitioner, governments can give the impression that they are providing insured services of substantial magnitude when, in fact, the benefits will accrue to very few Canadians. It was therefore simply a token gesture, made to assuage the sting of the critics' attack while at the same time making political gain. The major preventive and treatment services offered by the dental profession cannot qualify under the criteria laid down by the Medical Care Act. To have a real practical meaning for the Canadian people, the in-hospital requirement must be removed.

All members of the dental profession, but most assuredly the oral surgeons, have a legitimate complaint. A review of the covered dental benefits reveals them to be almost completely surgical in nature. Since the oral surgeon has devoted at least 75 per cent more time to training than the general practitioner, all of this in the surgical sphere, he particularly is disturbed by the discriminatory aspect of medicare as it relates to dentists' services. To have a restriction on the location where the specified procedure is performed by the dentist and not to have the same restriction placed on the medical practitioner is to admit to frank discrimination — discrimination which involves public funds. Although convenient as a rein for the government, it is patently undemocratic when both professionals are legally qualified to render the same service.

But is this the essence of the question? The profession and the qualified people in government, I believe, are convinced of the merit of a preventive philosophy in dental care, starting with the children and adding older age groups by increments. Financially prudent, it is also therapeutically sound. Why then this vacuous gesture oriented toward the surgical aspect of dentistry? The only conclusion acceptable relates to expediency necessitated by political and fiscal influences.

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# Student movie makes dental scene

Movie and television film clips are good media to help persuade people to take better care of their teeth. But often by trying to appeal to the masses, the message loses its appeal to specific groups that need special attention.

Two would-be movie moguls that are really dental students in disguise have co-produced a colour movie that slants toward youth, with particular emphasis on the high schooler.

After some months of test viewing by student groups, interest is spreading. University of Toronto's Brad Chapple, 26, and Ron Bell, 25, are anxious that the Canadian Dental Association move quickly in distributing their film, as they feel it could be outdated in a couple of years.

The CDA, which provided most of the financing, now has the first prints which are being used by its Bureau of Public Information to test public reaction. The prints will retail at $50 each, including sales tax and shipping charges.

The 15 minute colour movie – it's a non-talkie but with background music – was produced, directed and acted by students and some volunteer dental patients. Brad and Ron sought – and frequently succeeded – in getting special deals from some professional organizations who helped with advice, equipment and processing of film.

And some of the wildest things happened during the shooting of the movie, dubbed *Think About It/Pensez-y.*

It all started about two years ago when a group of high schools, under the name of the Ottawa Collegiate Institute, sent Keith W. Davey, chairman of the CDA's Council on Public Health and Preventive Dentistry, a videotape on dentistry for its possible use.

Meanwhile, Davey, CDA Executive Director W. G. McIntosh and Lloyd Bowen, of the Bureau of Public Information, had been discussing the practicality of dental students producing a black and white videotape for closed-circuit TV.

Davey posted a vague notice at the University of Toronto's Faculty of Dentistry asking for volunteers for a special project. About 30 showed up for the meeting which was attended also by Davey, McIntosh and Bowen.

The tape made by the high school students obviously was not of professional standards, but it made a solid step forward in communicating with youth, say Brad and Ron. It prodded the minds of the Toronto dental students.

Ron suggested that "kids turn off with black and white," and he and cohort Brad felt that dental students could do a more professional job on a movie about oral health.

Brad, Ron and the other dental students also viewed an old CDA film.

As well as being dated in terms of clothes and hair styles, the CDA film was made before today's technology and techniques were developed in moviedom, says Ron. Both films were directed at teenagers.

A. Co-producers Brad Chapple and Ron Bell, aided by Doctor Keith Davey, head of paedodontics at the University of Toronto, have created an impressionistic dental health movie that "makes kids think for themselves."

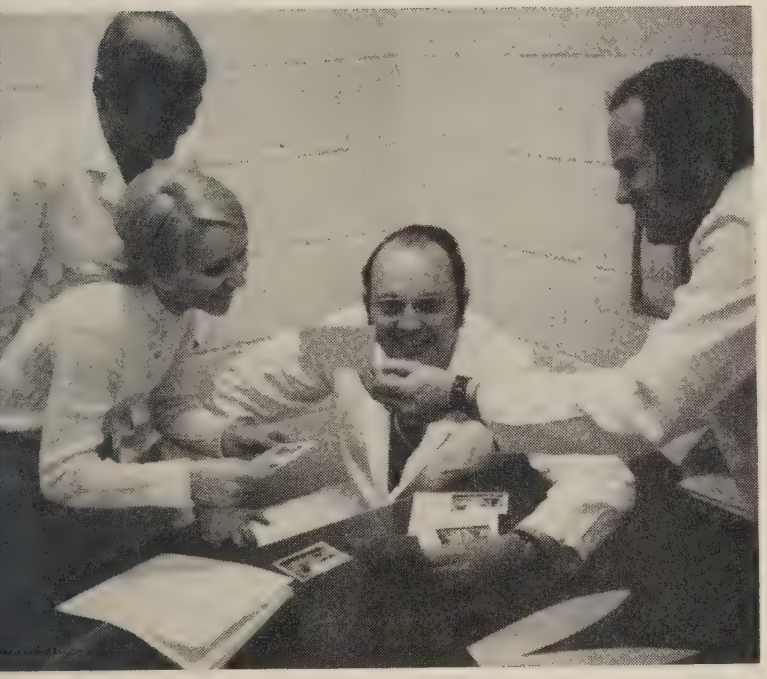
B. The two producers and some of their team of writers and actors cast a critical eye at the first film print. Seated in front are Doctors W. D. MacKay and K. W. Davey and Nick Shabotynsky. Looking on are Al Menkis, Bill McNiece, Brad Chapple, Pat Higgins, Ron Bell, Jerry Ross, Vince Wroblewski and Jim Isaac.

C. Countless days and hours were spent assembling student scriptwriters, directing the student cast and shooting on location. Pictured at one of these planning sessions are Brad Chapple, Doctor Davey's secretary Joyce Deeton, Doctor Davey and Ron Bell.

D. Close student-faculty cooperation helped to assure the movie's successful completion. Picture illustrates the warm, friendly yet relaxed atmosphere between producers Chapple and Bell and staff members MacKay and Davey.

A

B



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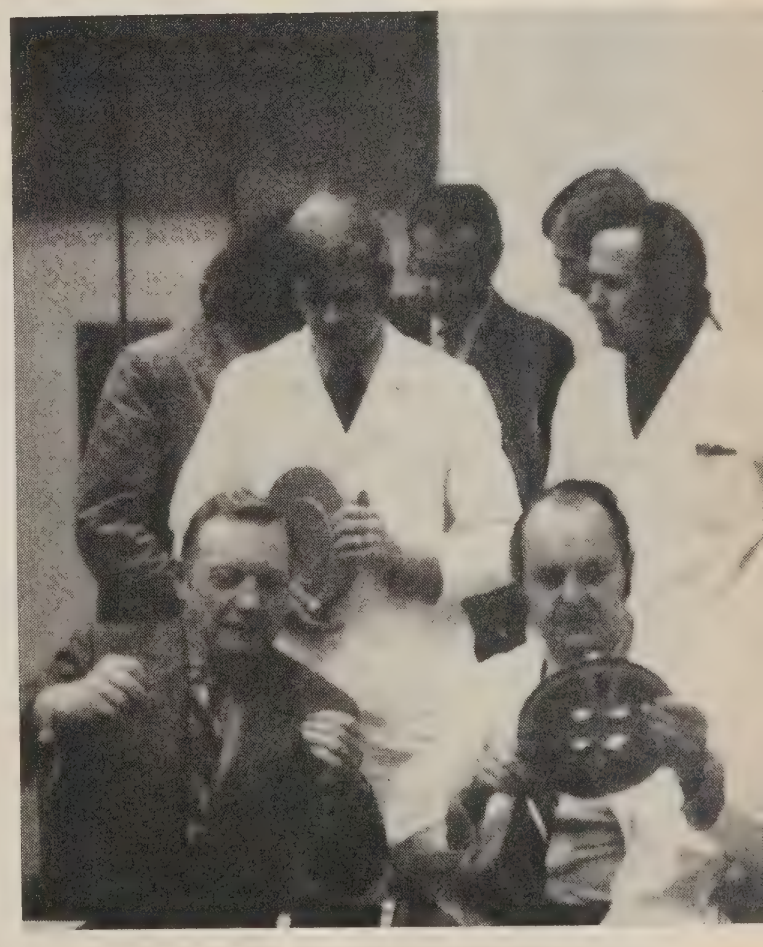


D

**Springboard**

Brad says the films "offered a springboard" for their own ideas for making a movie. They wanted to create an impressionistic movie that "would make kids think for themselves." The old, lecture methods were out, he says. And so was born the name *Think About It.*

Davey, who guided the project, says he wanted completely unbiased views from the dental students, so they were kept in the dark until the films were shown in the faculty auditorium.

They rejected the idea of making a colour videotape, because its processing would have to be done in the United States and there was too much red tape involved in getting it back and forth across the border. They decided to make a colour movie instead.

Gord Pringle, head of the audiovisual department at the faculty, "started us rolling," says Brad. Facts and figures were gone over and a 14 member committee was set up and jobs were assigned. Doctor Davey's secretary Joyce Deeton did all the secretarial work.

The best possible people on the outside were wanted to help out says Ron. Rick Rigelhof, head of graphics at Scarborough College, and David Harford, the school's head cameraman, helped out. Their contacts in industry formed another springboard, says Brad.

**Bridging the generation gap**

Brad contacted high school teachers to find out what teaching methods were being used and what the teens wanted to know in the physical health area, including sex education and drug abuse.

Ron went to the teenagers themselves, setting up group interviews of three or four students at a time.

The students were from Grades 12 and 13 and included one first year girl from Ryerson Polytechnical Institute.

Youthful as they are, Brad and Ron felt that they could have their own "generation gap" between them and the high schoolers. The age difference ranged from five to eight years.

"We had to find out if we were too far away from them ideologically. We had to relate to them," says Ron.

Ron found that they were close to the high schoolers.

"All the kids I talked to had the very same ideas I had at their age – only they were more mature, sane, sensible and informed," says Ron. "You couldn't snow them," he adds. The students were of all varieties imaginable, says Ron. "We even had one long-haired type with a Mexican poncho and hat."

Once the early research was complete, the dental students started writing down their ideas. The fourth year team of writers included: Pat Higgins, Gerry Ross, Bill McNiece and Vince Wroblewski, who was the main character in the movie. Third year was represented by Jim Isaac and Al Menkis.

The research continued. Teenagers were often brought in to the writers' bull sessions to ensure the ideas were properly slanted to the high schoolers.

Once the story line was written it was presented to the CDA who had budgeted for a one minute film clip to be done by professional moviemakers. The student movie committee met with the CDA again in late April 1970 and convinced it to throw the $6,500 budget its way.

The University of Toronto Dental Students Society kicked in another $500.

**Shooting**

With the green light, the students had shooting planned on May 1. Actors as well as production staff were recruited from the dental student ranks. Big turnups resulted from vague notices posted such as "if you want to be in a movie or help out, be at a certain location," says Ron.

The Toronto Transit Commission was a big contributor. It loaned a seven car subway train and three men at their yards and held up regular Saturday service several times for the students to get some good subway station shots.

Toronto radio station CHFI loaned its traffic helicopter and pilot several times for a couple of hours each time.

Hamilton's famous Dundurn Castle was already being used by the Canadian Broadcasting Corporation TV crews for a movie on Mackenzie King. CBC shooting stopped at 5:00 am one morning and the students piled in at 6:00 am to shoot a bathroom scene.

But it was the off-camera scenes that were memorable.

Doctor Carl E. Purdy, acting head of prosthodontics at the Faculty of Dentistry, was being photographed in a bathtub, enveloped by a cloud of foam resulting from use of a whole box of Mr. Bubble.

The regular castle tours were about to start and the cast and production team were delayed in getting their equipment out.

There was no pipe attached to the bathtub drain and small buckets had to be used to bail out the 122 year old bathtub.

The water was no problem to drain – but oh those bubbles!

Picture the scene as the first tour of the day arrived complete with giggling schoolgirls.

There was Purdy, a man in his sixties, dressed in nothing but a bathing suit and Bowler hat, rushing back and forth with the others carrying buckets of bubbles. And he's a retired Canadian army colonel, no less.

Ron says Brad has great charm with the opposite sex. Brad shyly agrees. It was this oozing charm that recruited a few key actors for no pay.

For example, Brad brought in a girl of 22 who had no front teeth and who had walked into the university's clinic for treatment.

In mid-October the movie was shown to McIntosh, Davey and Bowen. Ron feels the response was "fairly favourable." The response from a sampling of high schools brought about the enthusiastic response desired.

The black-tie affair held by CDA at Scarborough College to celebrate the movie's completion ended rather unofficially. Davey concedes that he and Doctor Ivan Hrabowsky, ODA president, were ejected by the janitor at 2:00 am.

There were many hurdles to leap and many hours put in. Ron and Brad are now awaiting widespread distribution of the film and are eager to produce another movie.

*Our Mistake* – The report of the Prince Edward Island Dental Manpower Study said on page 53 of the February Journal that ". . . staff could commute up to 50 miles *in* a four chair mobile clinic." The correct wording should have been: ". . . staff could commute up to 50 miles *to* a four chair mobile dental clinic."

# Dentistry in the news

## National Convention

### Philadelphian to address periodontology meeting

A two day meeting is in store for the Canadian Academy of Periodontology during the national convention at Ottawa, Friday and Saturday, October 1-2.

D. Walter Cohen, Philadelphia, and A. H. Melcher, Toronto, are the principal essayists. Doctor Cohen will speak on Friday morning and afternoon, while Doctor Melcher will address the Academy on Saturday morning. Saturday afternoon has been set aside for the annual business meeting.

Members' wives have not been left out of the festivities. Tentative plans call for an informal ladies' dinner on Friday evening.

### Oral surgeons will hear Doctor Topazian

A half day program on advanced techniques of preprosthetic surgery will be presented to oral surgeons attending the annual meeting of the Canadian Society of Oral Surgeons during the CDA national convention in Ottawa.

Richard G. Topazian, chairman and professor of oral surgery at the Medical College of Georgia, will address the society at the National Defence Medical Centre on Friday morning October 1.

He will describe the pathogenesis of denture instability and outline principles for soft tissue and bone surgery as applied to prosthodontics. Doctor Topazian will also discuss the management of soft tissue abnormalities.

In addition, the noted oral surgeon will describe the treatment of mandibular atrophy by vestibuloplasty and ridge augmentation using bone and alloplastic materials. He will also discuss the treatment of developmental jaw deformities in edentulous patients.

At a clinico-pathological conference on Friday afternoon, participants will have an opportunity to examine reports of several problem cases and discuss their diagnosis and treatment.

The annual business meeting will be held at 4:00 pm in the National Defence Medical Centre. Later that evening, a cocktail party will be held at the Skyline Hotel preceding the CDA president's party.

CSOS members are also invited to join the Canadian Society of Orthodontists on Thursday morning, September 30, at the Skyline Hotel. Many will also wish to attend the annual convocation of the Royal College of Dentists of Canada on Thursday afternoon.

### Buonocore to address paedodontic group

September 30-October 1 at Ottawa's Skyline Hotel are the dates and place for a two day meeting of the Canadian Academy of Paedodontics during the CDA national convention.

W. H. Feasby

The clinical program features presentations on "Techniques of Communication" (A. Shapira); "Radiographic Study of Tooth Eruption" (W. H. Feasby, London, Ont); "Effect of Oral Physiology on Diphenylhydantoin Therapy" (D. A. King); "Caries Prevention through Pit and Fissure Sealing" and "Adhesive Bonding to Enamel" (Michael Buonocore, Rochester, NY); and "Comparison between Clinical Examination Fibreoptics and Radiography for Caries Detection" (K. C. Titley).

The national executive council of the Canadian Society of Dentistry for Children will meet on Thursday morning September 30 at 9:00 am. A Canadian Academy of Paedodontics business meeting is scheduled on Thursday afternoon at 3:30 pm.

### Public health dentists will hear Doctor Arnim

The Canadian Society of Public Health Dentists will hold a one day meeting, Friday October 1, during the CDA national convention in Ottawa, according to R. E. Feasby, Toronto, CSPHD president.

Sumter S. Arnim, dean of the University of Texas Graduate School of Biomedical Sciences, Houston, will address CSPHD and general convention delegates at 10:00 am on Friday morning. His topic will deal with practical preventive dentistry in modern dental practice. Doctor Arnim will also speak to the public health society in the Joliette Room of the Skyline Hotel on Friday at 2:00 pm. Following this address there will be a business meeting at 3:30 pm.

### Orthodontic academy sets three day meeting

A lecture and a panel discussion on "Surgery versus Orthodontics" will be presented to members of the Canadian Association of Orthodontists at the CDA national convention in Ottawa. Leading the discussion will be André Charest, a Quebec City oral surgeon. Other important clinicians and their topics include R. Bruce Ross, Toronto, who will deal with surgical correction of facial deformities, including cleft lip and palate, and Allan Taylor, who will speak about rhinoplasties and facial assessment.

W. O. Mulligan, Saint John, NB, will deliver the Grieve Memorial Lecture on Friday morning, October 1. The lecture, commemorating the prominent orthodontist, deals with "Radiodontics as an Aid to General Practice Orthodontics."

The three day meeting, September 30 to October 2, will be held at the Skyline Hotel. Members of the Canadian Society of Oral Surgeons have also been invited to attend.

## The Association

### CDA executive tackles headquarters reorganization

The CDA Executive Council, meeting March 22-24, received a report on pro-

posed headquarters reorganization and appointed a special committee to formulate objectives and service priorities for the Association.

Major staff changes proposed in the headquarters study report include the appointment of a director of administration and a director of communications, the addition of a news editor for the Journal, appointment of a public information officer and conversion of Journal and convention advertising from an external service to a staff function. The headquarters study, requested by the Board of Governors at its 1970 annual meeting, was conducted by the Thorne Group Management Consultants of Toronto.

The report also suggested a further study to identify services which should be provided by CDA headquarters. The Executive Council accordingly appointed a small ad hoc committee to define the Association's objectives and evaluate its services in terms of cost, utilization and alternative methods of furnishing such services. The committee was also asked to develop a priority rating for each activity and to formulate proposals for staff adjustments and the necessary accommodation for performing the designated services.

CDA President W. J. Spence, Past President H. R. MacLean and L. E. English enjoy a welcome coffee break during the Executive Council meeting March 22-24.

The council also concurred with the principle of moving CDA headquarters to Ottawa and authorized the ad hoc committee to employ any necessary help in ascertaining a suitable location and premises in the national capital.

The Executive Council learned that all 10 corporate members favour elimination of the "in-hospital" stipulation for medically required oral surgery covered under the Canada Medical Care Act. The council instructed the executive director to approach the Minister of National Health and Welfare and seek the removal of this stipulation.

In other actions, the council:

Cecil White (centre) of the Canadian Health Insurance Association was an observer at the CDA Dental Services Council meeting, March 10-11. He is shown chatting with W. W. Shortill, Winnipeg, and D. A. Eisner, Halifax.

– Approved two proposals by the Council on Education – one, to accredit non-profit training programs for dental assistants; the other, to hold a conference on continuing education in dentistry;

– Authorized the allocation of $2,000 toward the cost of a CDA-sponsored dental health column for major daily newspapers;

– Authorized a survey of CDA members to ascertain potential subscriber interest in an audio-tape cassette service for continuing education;

– Approved locations for future CDA national conventions in St. John's, Nfld, late August 1975, and Edmonton, early fall 1976;

– Authorized payments to the CDA sections based on $10 for every section member who registers at the 1971 national convention in Ottawa;

– Asked the Communications Council to consider methods for encouraging the publication of undergraduate dental journals; and

– Disagreed with a suggestion that all CDA past presidents automatically become honorary members of the Association.

## Council urges start on CDA investment program

A resolution recommending extension of the CDA Retirement Savings Plan by the addition of a commingled fund and an interest account to the existing fixed income and equity funds, and the establishment of a companion unregistered investment program with four compar-

D. C. Way (seated), chairman, and members of the CDA Council on Insurance and Investment held a two day meeting at CDA headquarters April 1-2. Pictured with Doctor Way are (l to r) G. E. Jackson, administrator, Canadian Dental Service Plans Inc; D. M. McDonald, CDA comptroller; Ernest Rollaston; CDA Executive Director W. G. McIntosh; R. L. Rasmussen; D. C. Steeves; O. F. Wright; and C. L. Moran.

able vehicles, was adopted when the Council on Insurance and Investment met in Toronto, April 1-2.

In a separate resolution, the council approved the principle of including income protection coverage for dentists' employees under the national-provincial insurance package.

The commingled fund allows the Royal Trust Company, on behalf of participating CDA investors, to buy and sell units in the other three portfolios as market circumstances dictate. The trust company would thus perform its usual function of selecting securities within the broad classification of debt and risk as well as selecting the area which is most attractive at any given time.

The interest account would resemble a bank account and would operate at par value. The fluctuation of market value which occurs in the fixed income account would not be present in this vehicle. Each year the entire interest earned in this account would be distributed to the members' accounts prorata to their holdings. The interest account should prove useful in protecting the member who is approaching retirement from adverse fluctuations in the value of his total holdings.

A report from William M. Mercer Ltd, a firm of actuarial consultants who commented on the proposed investment program, urged that the plan:

– Require that all investment income be re-invested on receipt; and

– Permit deposits on the same quarterly dates as the Retirement Savings Plan.

### Doctor Cormier dies in Moncton

A. J. Cormier, Moncton, an honorary member of the Canadian Dental Association, died March 15 at the age of 84. He was a past president of the Moncton and New Brunswick Dental Societies.

A. J. Cormier

Doctor Cormier received his dental degree at the Baltimore College of Dental Surgery (University of Maryland) in 1910. In 1950 he received a PhD degree from St. Joseph's University, Memramcook, NB.

A life member of the New Brunswick Dental Society, Doctor Cormier was also honoured with an honorary membership by the Canadian Dental Association in 1966.

Doctor Cormier's three sons all became dentists. They are Doctor George and Doctor Paul in Moncton and Doctor Leo in Saint John.

## International Items

### Montreal orthodontist at Yugoslav meeting

Noted Montreal orthodontist H. T. Oliver was a major essayist at the recent Winter-Dental Assembly in Ljubljana and Bled, Yugoslavia. The meeting was held February 26 to March 4.

Doctor Oliver, who spoke about neonatal orthodontics for clefts of the lip and palate, received high praise for his innovations in this important field.

H. T. Oliver

### Berkshire conference slated for June 13-17

Tufts University annual Berkshire Conference in Periodontology and Oral Pathology will be held at Eastover in Lenox, Mass, June 13-17. The conference is open to general practitioners and dentists in specialized practice. Further information and application forms may be obtained by writing to Tufts 22nd Annual Berkshire Conference, 136 Harrison Ave, Boston, Mass 02111, USA.

### Congress on dentistry for the handicapped slated next October 7-8

Canadian dentists have been invited to the first International Congress on Dentistry for the Handicapped in Atlantic City, New Jersey, October 7-8, 1971.

The sessions, just prior to the annual meeting of the American Dental Association, will discuss all phases of dental care for these patients as well as programs for their treatment.

For further information, please write to M. M. Album, Medical Arts Bldg, Jenkintown, Pennsylvania 19046, USA.

### Mexican congress set for October 31-November 3

Canadian dentists have been invited to the first Latin-American Dental Seminar in Mexico City next October 31-November 3. The meeting coincides with the biennial congress of the Mexican Dental Association.

For further information please contact J. A. De Lille, Foreign Secretary, Asociación Dental Mexicana, Ezequiel Montes No 92, México 4, DF, México.

## Dental Organizations

### Ontario association president visits PEI manpower project

Recent visitors to Halifax and Prince Edward Island were Ivan Hrabowsky, president of the Ontario Dental Association, and R. L. Moran, Toronto, coordinator of the ODA's blueprint for the delivery of dental services. The two Ontario dentists visited the Atlantic Provinces for on-the-spot inspection of the Prince Edward Island dental manpower project (page 50, February Journal).

In Halifax they held discussions with Dalhousie University dental officials regarding the special two month training program in extended duties for dental hygienists. These duties include the restoration of teeth with plastic filling materials after a dentist has prepared the cavity.

Accompanied by R. G. Romcke, PEI's provincial dental director, the Ontario delegates then visited the private offices of three island practitioners – A. L. MacLean and J. R. Robertson, Summerside, and G. D. Barrett, Charlottetown – who employ hygienists trained in these extended duties. All were enthusiastic in their endorsement of the hygienist's new role in helping to provide more service to the public. Leo MacIsaac, another Charlottetown practitioner who previously employed one of these auxiliaries, told the visitors that he is eagerly waiting for more of the specially trained hygienists.

The two Ontario dentists then visited the special public health clinic for children which is set up in a classroom at the school in Belfast. Similarly trained hygienists are employed in the clinic.

Comparable studies may be in store for Ontario private practices, according to Doctor Hrabowsky. These investigations will likely cover expanded duties for certified dental assistants (rubber cup prophylaxis, topical application of anticariogenic agents and bitewing radiography) as well as extended duties for hygienists (including the placement of plastic filling material in teeth previously prepared by a dentist).

### Montreal group celebrates 50th anniversary

Montreal's Mount Royal Dental Society, founded in 1921 as the "Dental Study Circle of Montreal," marked its golden anniversary with a special commemorative meeting March 26-27.

S. M. Bhaskar of the US Army Institute of Dental Research, Washington, delivered four lectures on Thursday March 26. His topics covered the management of mucous membrane lesions in children, oral lesions of old age, and x-ray interpretation of jaw pathology.

The meeting concluded on Friday evening with a highly successful dinner-dance at the Chateau Champlain.

## Dental Education

### Quebec analgesia group sponsors course

The Quebec Analgesia Study Club will sponsor a course on analgesia in dentistry in Montreal, May 29-30.

For further particulars, please contact Bernard Dolansky, Suite 377, 6000 Côte des Neiges, Montreal 249, Que. Telephone 342-0763.

### American endodontists offer award in Canadian schools

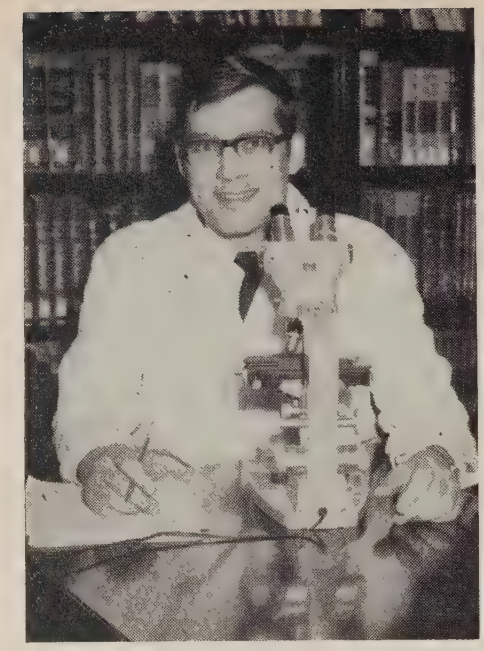
The American Association of Endodontists will initiate a new student award program in Canadian dental schools, it has been announced. The award will go to the graduating student with the most outstanding record of achievement in endodontics. It consists of a certificate, a year's subscription to *Oral Surgery, Oral Medicine & Oral Pathology* and a year's free student membership in the American Association of Endodontists.

### Tufts launches three year degree program through 12 month curriculum

Students entering Tufts University School of Dental Medicine in September 1972 will study 12 months a year and graduate in three years instead of four.

Dean L. J. P. Calisti says Tufts University is one of the first dental schools in North America to announce an accelerated program. He believes the new scheme will produce more and better trained dentists sooner than under the present curriculum, which will be phased out gradually by 1975.

He notes that the 12 month program has advantages over a nine month academic year. The school's facilities will be in use continually; the faculty will be able to select teaching time from a 12 month calendar; students will graduate and enter practice or begin postgraduate studies at an earlier date.



Major D. E. Jones of The Pas, Manitoba, is one of two Canadian Armed Forces dental officers studying at the US Army Institute of Dental Research, Washington. Upon completion of his current training, Major Jones will continue at the Institute with a residency in periodontics. The young Canadian officer is a 1965 graduate of the University of Manitoba, Winnipeg. A veteran of nine years' service, he entered the Canadian Forces under the dental officers' subsidization program. He and his wife, Janet, make their home in Bethesda, Maryland, with their two sons, Todd and Scott.

## Public Health

### Sweets advertising may be curbed on US TV

The American Council on Children, Media and Merchandising has proposed a code to moderate advertising of sweets and other foodstuffs to children over television.

The proposed code would include these points: mandatory identification of ingredients and nutrients in foods advertised over the air; reduction in the advocacy of sugar; elimination of toys and bonuses to make a child select one food over another; restriction in the number of advertisements per hour on children's programming; prohibition of advertisements for drugs, medicines or vitamin pills during certain hours; separation of advertisements from program content; and establishment of a centre to study TV impact.

## Economics

### National conference looks at "assistance to physicians"

The type of help required by physicians and the possible methods of providing it were the topics of a National Conference on Assistance to the Physician held in Ottawa April 6-8.

"Licensing Requirements for Assistant Physicians" was the topic of a major presentation by Horace Krever, professor of law at the University of Western Ontario and a former member of the Ontario Committee on the Healing Arts.

The three day meeting was organized by the Department of National Health and Welfare, along with the Canadian Medical Association, l'Association des Médecins de Langue Française du Canada, the Canadian Nurses Association and the Consumers' Association of Canada. Participants included physicians, nurses, consumers, health service planners, researchers and educators.

## Research

### High molecular polysaccharides may cause postoperative haemorrhage

A Canadian oral surgeon has shown that routine use of high molecular weight polysaccharides like dextrans may be unsuited as a fluid replacement for patients who have undergone oral surgical procedures with minimal bleeding. These agents should be reserved for patients in severe shock resulting from haemorrhage, trauma, surgery or burns, and in whom there is almost complete vasomotor collapse.

Writing in the January 1971 *Journal of Oral Surgery,* L. I. Gaum, Toronto, describes the case of a 22 year old woman who underwent full-mouth extractions and alveolectomies in a hospital outpatient department. Approximately 100-150ml blood were lost. During the operation, 500ml of normal saline solution and 500ml of a high molecular weight polysaccharide (dextran), with an average molecular weight of 100,000, were administered intravenously.

Severe haemorrhage commenced about 15 minutes after termination of the procedure and continued for about 24 hours despite the application of pressure dressings, suturing and various methods of fluid replacement.

The Toronto dentist attributed the severe haemorrhage and abnormal postoperative blood test results to the dextran solution administered during surgery.

He concludes that the use of an agent with antithrombotic action in a patient who has undergone a minor oral surgical procedure with minimal blood loss is obviously inviting severe postoperative haemorrhage, particularly when the procedure has left open surgical socket wounds.

## Ontario study shows value of children's comforters

A 19 year study by a group of University of Toronto dental scientists has concluded that babies who are permitted to suck pacifiers for a period following weaning are less likely to have a thumbsucking or fingersucking habit than those who are denied a pacifier. In consequence, they are far less likely to have misplaced teeth.

Children of five age groups – three, six, eight, 10 and 12 – were studied at the Burlington (Ont) Orthodontic Research Centre. In all, it was found that thumbsuckng or fingersucking was associated with an increase in malocclusion. The amount of displacement varied with the intensity and duration of the sucking habit.

In children who stopped thumbsucking before the age of six, however, the prevalence of malocclusion was no higher than normal.

Results of the study were reported March 20 to an American Association of Dental Research meeting in Chicago.

The Canadian scientists, led by Frank Popovich, Burlington, found that where malocclusion was associated with thumbsucking it was of a distinct sort, different from malocclusions caused by other factors. In particular, thumbsuckers showed a narrowing of both upper and lower dental arches and outward deformation of the alveolar process in the incisor region.

Children who were allowed pacifiers were less than half as likely to show malocclusion as those who used teething rings or had no pacifiers.

The scientists also reported a definite relationship between the prevalence of sucking habits and (1) the father's occupation, (2) the number of children in the family, and (3) the duration of the weaning period.

The sucking habit did not vary significantly among children grouped according to age and racial origin of parents, order of birth, schedule or demand feeding, or the degree of the child's appetite.

Children of executive and professional families showed the highest rate (55 per cent) of thumbsucking, while those of farm families had the lowest (28 per cent). The remaining groups – including salesman, skilled and unskilled labourers, white collar workers and self-employed persons – showed a median rate of 39 per cent.

Families with only one child or with four children showed the lowest rate, when assessed by number of children.

## International research meeting hears 874 reports

The International Association for Dental Research heard a record 874 scientific reports at its meeting which concluded March 21 in Chicago. Among topics discussed were the recording of dental and medical histories through computers, a new filling material, new methods for identifying oral bacteria and a method for early detection of incipient caries.

Captain Kirk Hoerman of the US Naval Dental Research Institute at Great Lakes, Illinois, discussed the use of minicomputers for the recording of a patient's dental history.

He explained that a simple 15 minute interview would be conducted by the computer, with the patient responding to questions flashed on a television-like screen. The computer would enable the dentist to record concise and necessary dental histories of patients on magnetic tape and store them for future reference.

### *Computerized tooth charting*

Captain Hoerman also said that a similar device can be used to chart a patient's teeth.

A tooth chart from the computer is flashed on the television screen. When the dentist has examined the patient, he tapes the disease symptoms and carious lesions through use of a miniature throat microphone. The computer records the dentist's words and transcribes them onto the patient's records.

He added: "The work on this utilization of computers in dentistry has just started, and in the future a group of dentists could share a single computer and reduce the costly expenditures of time devoted to history-taking and record-keeping for their patients."

### *Gold improves amalgam*

A little gold greatly improves the tensile strength and durability of traditional silver amalgam fillings, L. B. Johnson, Jr. of Virginia Commonwealth University told the IADR participants. He said that laboratory tests showed the new alloy is more resistant to corrosion and less likely to flow under pressure.

One possible explanation of the way the gold works is by maintaining vacancies between atoms in the crystal lattice. Presumably, Doctor Johnson said, mercury and tin atoms can be fused more readily through the openings which the gold creates. Thus, in a relatively short time, the two solutions of the matrix become one solution.

### *New way to identify bacteria*

Sigmund Socransky of the Forsyth Dental Centre, Boston, told the IADR session that scientists have developed new laboratory techniques which enable them to recover nearly all microbes present in the oral cavity. This will permit better identification of the specific bacteria which cause caries and periodontal disease.

He said the new techniques involve culturing samples of plaque in a variety of environments and using new methods to disperse clumps of microbes. Results showed that no single culture environment can be used to isolate the great variety of microbes that grow in plaque. It was found that while some organisms grow only in the presence of oxygen, others require both oxygen and carbon dioxide.

### *Early detection of caries*

A slow-down in the speed of internal tooth fluid movement resulting from high sugar diet may be an early indication of the eventual development of caries, two Loma Linda, California, dental scientists told the IADR participants.

R. R. Steinman and John Leonora explained that until recently the tooth was believed to be inactive. By applying a technique developed for studying fluid movement in major organs like the kidney, they were able to observe dentinal fluid transport from the pulp through tiny channels in the dentine to the enamel.

In earlier studies the two scientists had demonstrated the existence of hormonal stimuli which affect the rate of this dentinal flow. The first stimulus is a chemical released by the hypothalamus which goes to the parotid gland where it stimulates the release of a second hormone. This goes to the tooth, increasing the rate of fluid movement.

A high sugar diet, according to these authors, so disturbs the hormonal balance as eventually to reduce the flow in the transport system. With reduced movement of fluid, the tooth is more vulnerable to dental caries. The Loma Linda investigators said that healthy teeth with normal dentinal flow are invulnerable to the cariogenic microorganisms which are always present in the mouth.

### *Lasers strengthen enamel*

Other reports made at the IADR session indicated that:

– Laser treatment of teeth may prevent caries by causing the enamel to harden into a glaze;

– Caries in orthodontic patients can be drastically reduced by mixing a 10 per cent fluoride solution in cement used on bands;

– Infants who were permitted to use pacifiers beyond weaning were found less likely to suck their thumbs;

– Dietary supplements of zinc may increase the effectiveness of facial wound healing;

– Heroin addicts have a higher incidence of dental disease than the general population;

– A technique to implant plastic teeth using decalcified bone has been successful in monkeys.

### Saliva test can show toxic reaction to heart drug

Scientists at New York's Columbia-Presbyterian Medical Centre have found that a simple test of the potassium level in whole saliva can help show whether a heart patient on digitalis is suffering a toxic reaction to the drug.

Dentist Stephen Wotman, working with three colleagues, said that digitalis, administered to control heart arrhythmias, sometimes causes toxicity, and then must be cut or withheld and replaced by other treatments.

The problem is that the clinical signs of a heart attack and digitalis toxicity are similar, and it is difficult to determine whether a patient needs more digitalis or has received too much.

Doctor Wotman told a recent scientific session of the American Heart Association that levels of potassium in saliva rise in all patients taking the drug, but that the levels are significantly greater in the toxic cases than in the others.

Although atomic absorption spectrophotometry was used to analyse the saliva in the study, flame photometry tests which are available in most hospitals for blood analysis can be used as well.

### Two antibacterial mechanisms found in saliva

Two Boston scientists report that two separate chemical systems in sterile saliva from the parotid glands can inhibit the very common *Lactobacillus casei* in the mouth.

One system is effective in the presence of air or oxygen; the other functions when oxygen is excluded, as in periodontal pockets.

In addition to its mechanical removal and dilution of bacteria and their products, saliva has well known antibacterial effects which may be explained by the existence of these two systems.

Thiocyanate, normally present in saliva, is involved in the action of both systems. The aerobic system includes hydrogen peroxide and a peroxidative enzyme and is inhibited by catalase, an enzyme. In contrast, the anaerobic system is not inhibited by catalase. This system could be especially effective against oxygen-shunning oral bacteria which may contribute to periodontal disease, whereas the other system could help more against organisms involved in tooth decay.

### Oral biology meeting set for Zurich, Switzerland

Canadian dentists have been invited to the 5th International Conference on Oral Biology of the International Association for Dental Research, September 8-10. The meeting will be held at Horgen, Switzerland, approximately 10 miles from the city of Zurich.

Theme of the conference is the subject of "Enzymes in Oral Biology." Canada will be represented by M. S. Chang, Montreal, who will present a paper on "Semi-permeable Microcapsules for Enzyme Replacement." Other contributions will deal with the role of enzymes in general and gingival inflammation; in enamel, connective tissue and bone; and in saliva and dental plaque.

Advance registration forms may be obtained from DANZAS LTD, Bahnhofplatz 9, CH-8023 Zurich, Switzerland. The registration deadline is June 15.

Information about other aspects of the conference may be obtained by writing to: The Secretary, ICOB, Dental Institute, PO Box 138, CH-8028 Zurich, Switzerland.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on March 31, 1971:

*Fixed Income Fund* $11.750;
*Common Stock Fund* $23.763.

Total assets (market value) of the plan were $10,741,530.31.

The following portfolio purchases and sales occurred during the preceding month: bought 3,000 shares Aquitaine Canada Ltd; sold 3,000 shares International Utilities and 2,000 shares Canadian Tire Corp A.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Awards and Appointments

**E. R. Ambrose** was made an honorary member of the Mount Royal Dental Society when that organization held its fiftieth anniversary meeting. Doctor Ambrose is the new dean of McGill University's Faculty of Dentistry, Montreal.

E. R. Ambrose

**Alfred Weinstock,** Los Angeles, is the recipient of the 1970-71 Canadian Dental Research Foundation "Research Award."

Doctor Weinstock graduated from the University of Toronto Faculty of Dentistry in 1962. He earned a PhD degree at McGill University, Montreal, in 1969. Doctor Weinstock is presently associate professor of periodontology and anatomy in the schools of dentistry and medicine, University of California at Los Angeles.

Robert Rapp

Alfred Weinstock

**Robert Rapp,** professor and head of the Department of Paedodontics and director of the dental auxiliary training program at the School of Dental Medicine, University of Pittsburgh, recently served as a consultant to the Pan American Health Organization in Porto Alegre, Brazil. During his three week assignment at the Faculty of Dentistry of the Federal University of Rio Grande do Sol, Doctor Rapp instructed faculty members in selection, planning and construction of various audio-visual educational systems that can be used in teaching dental students. In addition to lectures on evaluation of audio-visuals in dental education, curriculum design and evaluation of clinical performance of dental students, Doctor Rapp conducted seminars on sit-down, four-handed dentistry.

Following his South American visit, Doctor Rapp served as visiting professor in paedodontics at the Faculty of Dentistry, University of Western Ontario.

J. H. Hibberd, a dental faculty member at the University of Toronto, receives a plaque from Carl Rieder, in Chicago, in appreciation of his presentation at a recent symposium on teaching aids co-sponsored by the University of Illinois College of Dentistry and the American Equilibration Society. ,

During his stay in London, he presented a seminar on evaluation of student clinical performance and a lecture on pair pathways in primary and permanent teeth.

Doctor Rapp, who graduated from the Faculty of Dentistry, University of Toronto, formerly practised in Toronto.

Kitchener, Ont, dentist **B. A. Richardson** was recently appointed chief of dental services at the Midwestern Regional Children's Centre, Palmerston, Ont. A specialist in paediatric dentistry, Doctor Richardson graduated from the University of Toronto in 1956 and earned a diploma in paedodontics in 1966. He is a fellow of the University of Toronto's Massey College and was a research fellow at the Hospital for Sick Children in Toronto. Doctor Richardson is currently an associate in dentistry at Toronto's Faculty of Dentistry. The Midwestern Centre is a 238 bed hospital school for the training and education of retarded children.

B. A. Richardson

**J. H. Hibberd,** professor of restorative dentistry at the University of Toronto, has been honoured for his contribution to dental teaching aids by the American Equilibration Society. He received a bronze plaque February 10 at a symposium on teaching aids in Chicago. The meeting was co-sponsored by the University of Illinois College of Dentistry, Chicago, and the Equilibration Society. Doctor Hibberd's presentation covered educational aids used in teaching occlusion in the Department of Restorative Dentistry at the University of Toronto.

## Deaths

Benger, Manfred Paul. 74. Ottawa. Royal College of Dental Surgeons of Ontario, 1925. 4-3-71.

Drew-Brook, Laurence D. 75. Toronto. Royal College of Dental Surgeons of Ontario, 1919. 24-2-71. Survived by Ruth (wife); Raye Wylie and Robert (sons); George and Thomas (brothers); and seven grandchildren. Associate member CDA.

Green, David Earle. 69. Calgary, Alta. Dalhousie University, 1925. 16-3-71. Survived by Edith (wife); Doctor Donald F. and A. Douglas (sons); and Janet (sister).

Jackson, Daniel George. 45. Brantford Ont. University College of Dublin, 1950. 1-3-71. Survived by Sheila (wife).

Jinchereau, A. Quebec City. Laval University, 1915. 12-2-70.

Pon, Frederick Hing Yew. 64. Toronto. Royal College of Dental Surgeons of Ontario, 1936. 27-3-71. Survived by Alice (wife); Calvin and Malcolm (sons); Angela (daughter); and Jennifer and Christopher (grandchildren).

Quinn, Francis Hawksworth. 88. Kelowna, BC. North Pacific College, University of Oregon, 1913. 16-2-71.

Somborac, Steven. 63. Toronto. University of Toronto, 1959. 9-3-71. Survived by Roxy (wife); Milan (son); Mrs. J. B. Pierce (daughter); Andrew and Barry Pierce (grandsons).

Stotesbury, Douglas Victor. 26. Duncan, BC. Formerly of Moose Jaw, Sask. University of Toronto, 1968. 23-2-71. Survived by Carman (wife); Teresa (daughter); Rev. Earl and Grace (parents); David, Donald and Dennis (brothers); and Mrs. Stotesbury (grandmother).

Whitman, Orman Brandon. 66. Calgary, Alta. University of Toronto, 1929. 25-2-71. Survived by Peter and Paul (sons); Adele (daughter); Mrs. A. O. Whitman (mother); Miss Fern Whitman (sister); and four grandchildren.

Wright, Weston Wilmont. 88. Winnipeg. Northwestern University, 1906. 6-3-71.

## In memoriam

### Douglas John Sutherland

D. J. Sutherland, Vancouver, died on February 15, 1971, at the age of 64.

Born in New Westminster, BC, Doctor Sutherland was one of the first dentists in British Columbia to begin practising before the age of 21. He was granted a temporary permit before being formally registered and licensed after his twenty-first birthday.

Doctor Sutherland was president of the Vancouver and District Dental Society from 1935 to 1936 and president of the British Columbia Dental Association from 1940 to 1941. He was also treasurer of the same association from 1948 to 1954. In 1954 Doctor Sutherland became the first vice-president of the Pacific Coast Dental Conference, which office he held for six years. In addition he was chairman of the dental faculty committee of the College of Dental Surgeons of British Columbia.

A keen advocate of continuing education, the Dr. Douglas Sutherland Clinic for Continuing Education at the University of British Columbia was named after him in February 1968. Dean S. Wah Leung of the UBC Faculty of Dentistry said of Doctor Sutherland: "Perhaps more than any other professional person in British Columbia he best exemplifies the spirit and philosophy of continuing education."

Besides his wife, Fan, Doctor Sutherland is survived by a son, John; a daughter, Mrs. H. B. Long; a sister, Miss Christine Sutherland; and six grandchildren.

## Le Congrès national

### Les orthodontistes se réuniront à Ottawa

Lors du Congrès national de l'ADC à Ottawa, les membres de l'Association canadienne des orthodontistes auront l'occasion d'assister à une conférence ainsi qu'à une discussion d'experts intitulées "Chirurgie ou Orthodontie". Le Dr André Charest, chirurgien buccal de Québec, dirigera la discussion. D'autre part, parmi les autres conférenciers, notons le Dr R. Bruce Ross de Toronto qui traitera de la correction chirurgicale des malformations faciales, y compris le bec-de-lièvre et la division palatine, et le Dr Allan Taylor qui parlera des rhinoplasties et de l'évaluation faciale.

Le Dr W. O. Mulligan de Saint-Jean au Nouveau-Brunswick, prononcera la Conférence Grieve le vendredi matin 1er octobre. Dédiée à la mémoire du célèbre orthodontiste, la conférence décrira comment la radiologie dentaire peut aider l'orthodontie en pratique générale.

La réunion aura lieu à l'Hôtel Skyline du 30 septembre au 2 octobre. Les membres de la Société canadienne des chirurgiens buccaux sont aussi invités à y participer.

T. M. Curry (à gauche), directeur des services dentaires de la Saskatchewan et R. A. Connor, administrateur de la Division de l'hygiène dentaire du Ministère de la Santé nationale et du Bien-être social discuteront des études réalisées au Canada sur les effectifs dentaires, lors du congrès annuel de l'Association canadienne des hygiénistes dentaires.

### Walter Cohen adressera la parole aux périodontistes

L'Académie canadienne de périodontologie se réunira les vendredi et samedi 1er et 2 octobre à Ottawa, au cours du Congrès national.

Les Drs Walter Cohen, de Philadelphie et A. H. Melcher, de Toronto, seront les principaux conférenciers. Les conférences du Dr Cohen auront lieu vendredi, matin et après-midi, et celle du Dr Melcher le samedi matin. Le samedi après-midi a été réservé pour l'assemblée annuelle des membres de l'Académie.

Les femmes des membres n'ont pas été oubliées. Le programme actuel prévoit pour elles un dîner dans la soirée du vendredi.

### Programme de l'Académie d'endodontie

L'Académie canadienne d'endodontie annonce qu'elle tiendra une réunion de deux jours lors du Congrès national de l'Association Dentaire Canadienne à Ottawa. Les séances scientifiques sont prévues pour les vendredi et samedi 1er et 2 octobre.

Le Dr Allan Krakow, de Boston, y traitera de l'endodontie pour les enfants et le Dr Cyril Gaum, de Boston également, discutera de certaines difficultés de diagnostic.

Le Dr Marshall D. Peikoff, de Winnipeg, parlera de la corrélation des observations cliniques et histopathologiques de l'effet de la carie sur la pulpe de l'homme.

Le Dr Harvey Wiener, de Montréal, décrira le traitement endodontique de plusieurs cas difficiles. Le Dr Calvin D. Torneck, de Toronto, examinera l'effet des interventions endodontiques sur les incisives en cours de développement, tandis que le Dr Fred Weinstein, de Vancouver, expliquera l'utilisation des fouloirs durant l'obturation des canaux radiculaires au gutta-percha.

L'assemblée annuelle des membres est prévue pour le samedi 2 octobre à 14h.

### Congrès de trois jours pour les hygiénistes

La huitième réunion annuelle de l'Association canadienne des hygiénistes dentaires aura lieu du 29 septembre au 2 octobre à l'Hôtel Skyline concurremment avec le Congrès national de l'ADC à Ottawa.

La réunion débutera le mercredi 29 septembre à 19h. avec une dégustation de vins et fromages offerte par l'ACHD à l'Hôtel Skyline.

Le jeudi matin, le programme scientifique débutera par des séances d'orientation et des séminaires sur l'enseignement de l'hygiène bucco-dentaire dirigés par Madame Pat Johnson, ancienne présidente de l'ACHD. D'autres discussions importantes porteront sur l'étude des effectifs dentaires dans l'Ile du Prince-Edouard et la Saskatchewan, le rapport du Comité Wells sur les auxiliaires dentaires, l'enseignement de nouvelles fonctions aux hygiénistes à l'Université Dalhousie de Halifax; et le projet de cours d'hygiène dentaire du Collège Algonquin.

Le samedi matin, Mlle Helen Mussallem, directrice générale de l'Association des infirmières canadiennes, parlera de l'évolution que l'on observe dans la pratique et l'enseignement des soins infirmiers.

Le conseil d'administration se réunira du 27 au 29 septembre à l'Hôtel Skyline.

La directrice du congrès de l'ACHD, Catherine Thom, assure que les congressistes pourront profiter des nombreuses distractions prévues pour compenser les séances de travail.

Ces distractions comprennent notamment une soirée au Centre National des Arts le jeudi 30 septembre et la soirée du président de l'ADC le vendredi. Le déjeuner annuel de l'ACHD aura lieu le jeudi 30 septembre.

### Les hygiénistes invitent les dentistes et les assistantes

Les membres de l'Association Dentaire Canadienne, de l'Association des assistantes et infirmières dentaires ainsi que

Mme Sharon French (à gauche), présidente de l'Association canadienne des hygiénistes dentaires, et Mme Pat Johnson, ancienne présidente de cette association. Mme Johnson dirigera des groupes d'étude sur les changements proposés dans l'enseignement de l'hygiène dentaire, au cours du congrès annuel de l'ACHD. Celui-ci coïncidera avec le Congrès national de l'ADC qui aura lieu à Ottawa du 29 septembre au 2 octobre.

les techniciens dentaires sont invités à participer au programme scientifique du congrès de l'Association canadienne des hygiénistes dentaires qui se déroulera à Ottawa du 29 septembre au 2 octobre. De son côté l'ADC a adressé une invitation semblable aux congressistes des divers groupes auxiliaires.

Les dentistes pourront s'intéresser aux discussions concernant les effectifs dentaires dans l'Ile du Prince-Edouard et la Saskatchewan, le rapport du Comité Wells sur les auxiliaires dentaires, et l'enseignement de nouvelles fonctions aux hygiénistes à l'Université Dalhousie à Halifax.

Lors du Congrès national, toutes les personnes participant aux réunions scientifiques devront porter leur insigne d'inscription.

Le Président de l'ADC, le Dr W. J. Spence, en conversation avec le président désigné, le Dr Louis Bernier, au cours de la dernière réunion du Conseil Exécutif. Le Conseil s'est réuni les 22, 23 et 24 mars.

# L'Association

## Le groupement des spécialités est approuvé

Lors de sa réunion des 10-12 février, le Conseil de l'enseignement de l'ADC a approuvé le principe du groupement des spécialités dentaires.

Il recommandera au Bureau des Gouverneurs que les domaines des spécialités soient au nombre de quatre: la pédodontologie, l'hygiène bucco-dentaire, la dentisterie restauratrice et la médecine/chirurgie buccale.

Le Conseil a décidé de nommer un comité permanent sur les spécialistes et les spécialisations. Ce comité aura pour tâche d'examiner et d'évaluer les demandes de reconnaissance de spécialités nouvelles. Il devra également, par l'intermédiaire du Conseil de l'enseignement, renseigner le Bureau des Gouverneurs sur toutes les questions concernant les spécialistes et les spécialisations.

Le nouveau comité a reçu quatre demandes de reconnaissance de spécialités nouvelles, en hygiène bucco-dentaire, dentisterie restauratrice, radiologie dentaire et pathologie buccale.

Le Conseil de l'enseignement recommande en outre que l'Association Dentaire Canadienne convoque une conférence sur l'éducation dentaire permanente. Il se déclare prêt à participer à l'organisation de cette conférence.

## Nouveau film éducatif de l'ADC pour les élèves du secondaire

L'Association Dentaire Canadienne a fait tourner un nouveau film de 16mm, intitulé *Think about it/Pensez-y* par des étudiants dentaires de l'Université de Toronto, sous la direction de Ron Bell et Brad Chapple, eux-mêmes étudiants de quatrième année.

Le Dr K. W. Davey, président du Conseil de l'hygiène publique et de la dentisterie préventive, a apporté son aide à la conception du film.

Il s'agit d'un film en couleur d'une durée de 15 minutes, avec piste sonore musicale et destiné aux adolescents.

Les premières copies sont disponibles dès à présent et elles seront prêtées aux organismes intéressés afin d'évaluer la réaction des élèves et déterminer le procédé final de distribution.

On peut emprunter le film en adressant une demande écrite au Bureau d'information au public, 234 rue St-George, Toronto 180, Ont, en précisant la date prévue pour la projection.

M. Rod Pettycook (à gauche) de la compagnie d'assurance Great West Life, de Winnipeg, et deux membres du Conseil des services dentaires de l'ADC, les Drs R. G. Dickson de Drumheller (Alberta) et W. D. McGinnis de Vancouver. M. Pettycook a assisté à la réunion du Conseil les 10 et 11 mars, au siège de l'ADC, en qualité d'observateur.

Les Drs D. A. Eisner, de Halifax; W. D. McGinnis, de Vancouver; P. E. Currie (président du conseil) de London; R. G. Dickson, de Drumheller en Alberta; et C. B. Allaby, de Moncton ont participé à la réunion du Conseil des services dentaires de l'ADC les 10 et 11 mars à Toronto. L'assemblée a connu des discussions animées telle celle que l'on voit entre les Drs Henri Hamel de Québec et C. G. Halliday, de Saskatoon.

## LE RAPPORT WELLS:
## EN FAVEUR DE L'EXPANSION DES FONCTIONS DES AUXILIAIRES

### Appréciation du Rapport Wells, mais avec réserves

Le rapport du Comité sur les auxiliaires dentaires (Rapport Wells) a été approuvé avec quelques réserves par le Conseil des services auxiliaires de l'ADC lors de sa réunion des 8 et 9 mars.

Le Conseil a loué le comité Wells pour avoir présenté un rapport clair, détaillé et avancé et s'est déclaré "d'accord en principe avec l'idée de rendre les soins dentaires plus accessibles en déléguant davantage de tâches à des auxiliaires dûment formées, comme le propose le rapport".

Cependant, dans une autre résolution, le Conseil a voulu exprimer des réserves à propos des questions suivantes:

L'énumération dans les lois dentaires provinciales des tâches dévolues aux hygiénistes et aux assistantes;

La préparation des cavités par les auxiliaires;

La représentation au sein du conseil canadien et des conseils provinciaux sur les auxiliaires dentaires, telle que proposée;

Les fonctions du Conseil canadien des auxiliaires dentaires;

Les méthodes de financement des soins dentaires pour tous les Canadiens;

La reconnaissance des thérapeutes dentaires travaillant dans les Forces armées canadiennes en qualité d'hygiénistes;

La promulgation de lois provinciales sur les auxiliaires dentaires qui soient distinctes des lois dentaires; et

La possibilité que la Recommandation No 4 soit prise hors du contexte. Celle-ci propose que "les techniciens dentaires qui ont accompli un programme reconnu d'étude et de formation puissent, sur l'ordonnance d'un dentiste, effectuer en outre la fabrication et l'adaptation des prothèses complètes et/ou la fabrication et l'adaptation des bagues d'orthodontie pour le public, sans intermédiaire".

Il a été déclaré à la Chambre des Communes que le gouvernement fédéral est très favorable à l'idée de contribuer à la formation d'auxiliaires dentaires, en collaboration avec les provinces. Le rapport du Comité sur les auxiliaires dentaires, que dirigeait le juge Dalton Wells, a été déposé au Parlement le 22 février. Ce rapport recommande de multiplier les fonctions confiées aux un système de soins dentaires semblagories.

Le comité de 12 membres a été établi le 13 juin 1968, pour faire suite à la Commission royale des services de santé, en vue d'étudier la possibilité d'employer le personnel auxiliaire, tel que les assistantes, hygiénistes et techniciens dentaires afin de fournir de meilleurs services dentaires aux Canadiens.

La plupart des recommandations du comité concernent les moyens d'améliorer la formation de ce personnel et la délivrance d'un certificat de compétence. Mais le rapport va même plus loin puisqu'il recommande d'offrir le plus tôt possible à tous les Canadiens un système de soins dentaires semblable à l'assurance-maladie.

### *Assistantes et hygiénistes*

Le rapport repousse la création de nouvelles catégories d'auxiliaires mais demande plutôt que les fonctions confiées aux hygiénistes et assistantes dentaires soient élargies. L'assistante travaillant au fauteuil devrait effectuer de nombreuses tâches techniques que l'hygiéniste dentaire accomplit actuellement de façon courante. Les deux groupes seraient formés en conséquence.

Les assistantes seraient ainsi chargées de prendre des empreintes pour les modèles d'étude; faire la mise en place de la digue et de la matrice; l'insertion des restaurations provisoires; la levée des prothèses; le nettoyage des dents à l'aide de cupules en caoutchouc; la surveillance ou l'application topique des substances anticaries; l'exposition et le développement des radiographies.

Les hygiénistes ayant reçu la formation appropriée seraient autorisées à mettre la digue en place; insérer les pansements sédatifs; prendre des empreintes pour les modèles d'étude; réparer les prothèses; placer et ôter les matrices; placer les bagues d'orthodontie; préparer les cavités; placer et finir les restaurations provisoires, les amalgames, les silicates et résines acryliques.

### *Techniciens et technologistes*

A propos des techniciens dentaires, le comité déclare que leurs fonctions devraient être définies dans les lois dentaires provinciales et devraient comprendre "la fabrication, la reproduction et la réparation des appareils de prothèse fixes ou amovibles, des couronnes et des ponts, selon l'ordonnance du dentiste".

Les fonctions des techniciens qui recevraient une formation supplémentaire reconnue devraient être élargies et comprendre la fabrication et l'adaption des prothèses complètes ou des bagues d'orthodontie directement pour le public. Les fonctions supplémentaires de ces techniciens, qui seraient nommés technologistes dentaires seraient accomplies

sur l'ordonnance et sous la surveillance d'un dentiste.

### *Enseignement et autorisation d'exercer*

Le rapport déclare que les assistantes devraient à l'avenir être formées dans des écoles secondaires et post-secondaires. L'enseignement de l'hygiène dentaire devrait également être transféré aux établissements post-secondaires afin que les cours universitaires actuels soient réservés au personnel d'enseignement et de surveillance qui irait former les assistantes et les hygiénistes dentaires.

La formation théorique des techniciens et des technologistes s'effectuerait dans des établissements post-secondaires tandis que la formation par apprentissage disparaîtrait progressivement. Il faudrait également créer des cours de perfectionnement plus brefs, équivalent à une année scolaire complète, pour les techniciens qui désireraient devenir technologistes.

Le comité condamne la Colombie-Britannique et l'Alberta pour avoir accordé le titre de denturologiste "à des personnes aux qualifications douteuses et possédant un dossier indiquant qu'ils avaient exercé illégalement". Le comité n'est pas d'avis que cette mesure puisse augmenter la dispensation des prothèses et réduire leur coût dans les régions rurales. Le rapport déclare que le coût s'est en fait élevé, car la plupart des denturologistes exercent dans les grandes villes où ils doivent faire face à des frais généraux à la hausse.

Le comité estime cependant que l'attribution de l'autorisation d'exercer aux denturologistes est probablement irréversible. Le problème serait résolu en les assujettisant à une nouvelle loi qui régirait les techniciens et technologistes dentaires. Les techniciens qui désireraient devenir technologistes devraient recevoir une formation supplémentaire et subir un examen en vue d'obtenir l'autorisation d'exercer.

### *Conseil des auxiliaires dentaires*

Le rapport propose la création d'un Conseil canadien des auxiliaires dentaires et de 10 conseils provinciaux destinés à maintenir l'uniformité du certificat délivré aux auxiliaires et de la reconnaissance des établissements d'enseignement. Le Conseil canadien comprendrait des représentants des conseils provinciaux ainsi que d'autres membres nommés par le ministre de la Santé nationale et du Bien-être social.

Les conseils provinciaux seraient composés de 11 membres—trois auxiliaires dentaires (une hygiéniste, un technicien ou technologiste, et une assistante dentaire, provenant des ordres prévus dans les nouvelles lois provinciales sur les auxiliaires dentaires), trois dentistes (nommés par l'association dentaire provinciale, le bureau de réglementation provincial et le ministère provinciale de la santé), trois autres personnes nommées par le ministre provincial de la Santé, une autre nommée par le ministre provincial de l'Education, et enfin le Ministre de la Santé lui-même.

### *Assurance dentaire*

Le comité recommande aux gouvernements de mettre en place un système d'assurance dentaire semblable à l'assurance-maladie afin que tous les Canadiens puissent recevoir des soins dentaires adéquats.

Pour instaurer cette assurance dentaire universelle, il demande aux gouvernements de commencer par un programme national de soins pour les enfants. Celui-ci serait agrandi d'année en année jusqu'a ce qu'il couvre tous les écoliers. Il serait ensuite progressivement étendu à toute la population.

Pendant les années d'expansion progressive du programme national pour enfants, les parents devraient conserver la possibilité de faire soigner leurs enfants éligibles soit par des praticiens privés, soit par les services dentaires publics.

Le comité demande aux ministres de la santé fédéral et provinciaux d'accepter la responsabilité d'élaborer, de financer et de gérer les régimes dentaires subventionnés par des fonds publics.

### *Le travail en équipe*

Un système public de soins dentaires ferait apparaître un manque d'effectifs qui pourrait être comblé en élevant le statut des auxiliaires dentaires et en les intégrant à un travail réalisé en équipe.

Les dentistes ne feraient que le travail qu'ils sont seuls qualifiés pour accomplir. Les autres tâches techniques plus ordinaires seraient confiées à un personnel spécialement formé à cet effet.

Les gouvernements fédéral et provinciaux devraient trouver les moyens d'encourager les dentistes à adopter le travail d'équipe. Les dentistes devraient être encouragés à agrandir leur cabinet dentaire et à employer un plus grand nombre d'auxiliaires en clientèle privée ou dans des cliniques publiques.

### *Composition du comité*

Le comité comprenait quatre praticiens nommés par l'Association Dentaire Canadienne, les Drs J. F. Reid de North Vancouver, M. A. Kamienski de Scarborough (Ont), J. G. Bélanger de Montréal et C. E. Dexter de Halifax.

Les autres membres étaient C. W. B. McPhail de Saskatoon (nommé par l'Association des facultés dentaires du Canada); A. M. Hunt de Toronto (nommé par la Société canadienne des dentistes-hygiénistes); M. Cleve Kidd, ancien vice-président de l'Association canadienne des pilotes de ligne (représentant le consommateur); G. D. W. Cameron, ancien sous-ministre de la santé nationale (représentant le domaine de la santé publique); Marjorie Jackson, de Toronto (représentant les auxiliaires dentaires); et Bruce A. McFarlane, professeur de sociologie à l'Université Carleton d'Ottawa.

Etaient membres à titre d'office: J. N. Crawford, ancien sous-ministre de la santé et R. A. Connor, administrateur de la Division de l'hygiène dentaire du Ministère de la Santé nationale et du Bien-être social.

## Le Canada

### Normes des connaissances du français

Le gouvernement provincial a décidé qu'un comité spécial sera formé pour évaluer les connaissances de la langue française requise des immigrants afin que ceux-ci puissent exercer leur profession au Québec.

Ce comité du ministère de l'Immigration aura pour tâche: (1) d'évaluer l'abilité de comprendre les textes écrits; (2) la perception phonétique; (3) l'abilité de comprendre le français parlé; (4) la langue parlée.

Une série d'épreuves standardisées sera employée et aidera à dissiper la confusion qui existait jusqu'ici parce que le gouvernement n'avait pas encore défini les normes exigées et comment ces connaissances du français seraient évaluées.

La même loi permet aux immigrants d'exercer leur profession durant les cinq ans durant lesquels ils attendent d'obtenir la citoyenneté canadienne.

Les examens de langue auront lieu une fois par mois à Montréal et à Québec aux bureaux du ministère de l'Immigration. Il peuvent aussi prendre place plus souvent si le ministère le décide.

Tous les candidats qui désirent s'inscrire dans l'un des 19 ordres professionnels doivent faire une demande au ministère de l'Immigration pour subir l'examen. Le candidat qui aura réussi l'examen recevra un certificat. Un même certificat ira à l'organisme de réglementation professionnelle.

Si le candidat échoue, il peut reprendre l'examen après trois mois.

Le comité maintiendra une liste des candidats inscrits et des résultats. L'ordre professionnel devra informer le ministère de l'Immigration du nom de l'immigrant qui désire exercer sa profession.

Auparavant, la loi exigeait une connaissance immédiate de la langue française et les corporations professionnelles elles-mêmes étaient obligées d'évaluer la connaissance du français.

### Castonguay: La santé est un bien collectif

La délégation des pouvoirs de l'Etat, qui permet à un organisme de réglementer une profession n'a aucune autre justification que l'intérêt public et la difficulté de l'assurer efficacement par des lois ou des règlements qui n'émaneraient pas de personnes compétentes.

Tel est le point de vue du gouvernement québécois que M. Claude Castonguay, ministre des Affaires sociales, vient encore de répéter.

La socialisation de l'ensemble des services professionnels n'est cependant ni nécessaire, ni souhaitable au Québec et il faut distinguer entre le caractère purement privé ou collectif de ces services.

"La santé étant non seulement un bien individuel mais aussi collectif, il est naturel que l'Etat voit à ce que les services nécessaires à sa protection soient accessibles à tous au plan financier. De là, l'instauration du régime d'assurance-maladie au Québec".

Socialisation ne signifie pas étatisation, ainsi que le démontre le régime d'assurance qui, selon M. Castonguay, n'a en rien altéré le caractère privé de la relation médecin-malade, non plus que le statut professionnel du médecin.

"S'il est vrai qu'une meilleure intégration des diverses professions dans les courants principaux de la société moderne s'impose au Québec, a commenté le ministre, il n'en demeure pas moins qu'une telle intégration ne saurait se faire par la seule intervention de l'Etat. Bien au contraire, seule une connaissance éclairée de la situation sociale par les divers groupes professionnels ainsi que leur prise de conscience des besoins fondamentaux de la population rendra possible son accomplissement".

### Examen des dentistes étrangers

C'est du 25 mai au 8 juin que le Bureau national d'examen dentaire évaluera 54 chirurgiens-dentistes étrangers désireux d'exercer leur profession au Canada. Auparavant, ces candidats à l'exercice devaient refaire des études universitaires menant à l'obtention d'un diplôme reconnu par les organismes de réglementation de chacune des 10 provinces.

Les examens se dérouleront en français ou en anglais à la Faculté de chirurgie dentaire de l'Université de Montréal et seront sous la responsabilité principale du Dr Roger Coulombe.

Le Dr James Purves, vice-président du BNED a précisé que les candidats sont déjà diplômés d'universités reconnues par l'Organisation Mondiale de la Santé et devront se soumettre à des examens écrits et à une vérification en clinique. Chaque candidat devra débourser $900 dont $500 lui seront remis en cas d'échec. Chacun des candidats a déjà été jugé conforme aux prérequis établis par le BNED.

L'an prochain, il a été prévu que les examens se tiendront à Toronto, tandis qu'en 1973 ce pourrait être au tour de la Colombie-Britannique d'accueillir ces chirurgiens-dentistes étrangers, dont certains ont fui leur pays pour des raisons politiques.

## L'enseignement dentaire

### Tufts délivrera le diplôme dentaire au bout de trois années d'études

Les étudiants qui entreront à l'Ecole de médecine dentaire de l'Université Tufts en septembre 1972 étudieront 12 mois par an et obtiendront leur diplôme au bout de trois ans au lieu de quatre.

D'après le doyen L. J. P. Calisti, Tufts est l'une des premières facultés dentaires en Amérique du Nord à annoncer un programme accéléré. Il déclare que le nouveau système produira un plus grand nombre de dentistes. Ils seront mieux formés et ceci plus rapidement que dans le régime actuel, lequel disparaîtra progressivement d'ici 1975.

Le doyen souligne ainsi les avantages de l'année académique de 12 mois; les installations de la faculté serviront en permanence; les professeurs pourront choisir leur période d'enseignement sur un calendrier de 12 mois; et les étudiants qui obtiendront leur diplôme commenceront à pratiquer ou entreprendront des études post-universitaires plus tôt.

### Les endodontistes américains offrent un prix

L'American Association of Endodontists annonce qu'elle instaurera un nouveau prix décerné aux étudiants des facultés dentaires canadiennes. Ce prix ira à l'étudiant finissant ayant obtenu les plus hauts résultats en endodontie et il consiste en un certificat, un abonnement

## L'ACADEMIE DES OMNIPRATICIENS FAVORISE L'EDUCATION PERMANENTE

*Les secrétaires des membres corporatifs provinciaux de l'Association Dentaire Canadienne ont tenu leur conférence annuelle les 11 et 12 janvier. Ils y ont surtout discuté de l'éducation permanente et de l'autorisation d'exercer. Le Dr G. H. Craig, de Belleville, Ont, est venu expliquer comment l'Académie des omnipraticiens dentaires cherche à améliorer les normes de l'exercice de l'art dentaire en Amérique du Nord. Voici un résumé des commentaires du Dr Craig:*

L'Académie des omnipraticiens dentaires a été fondée à Chicago en 1952 afin de promouvoir l'éducation permanente parmi les dentistes généralistes. L'Académie comprend 5,000 membres aux Etats-Unis, environ 200 en Ontario, et quelques-uns dans la plupart des autres provinces canadiennes. Le Canada est divisé en deux parties, qui ont chacune une représentation égale à celle d'un état américain.

Bien que son siège social soit à Chicago et que sa réunion annuelle ait lieu en même temps que le Chicago Dental Society Midwinter Meeting en février, l'activité de l'Académie est internationale. Elle est composée de groupes d'étude qui doivent mettre au point des présentations cliniques locales. Ces groupes sont eux-mêmes rattachés à des unités régionales plus importantes qui tiennent d'ordinaire une journée d'étude clinique par an.

Pour devenir membre il faut accomplir un certain nombre d'heures d'éducation permanente théorique. Un "fellowship" est accordé aux dentistes qui ont effectué 500 heures de travail. Un système centralisé enregistre la validité de tout le travail académique accompli par les membres. Cet aspect pourrait être particulièrement intéressant au Canada où il est question de faire de l'éducation permanente une condition nécessaire pour conserver l'autorisation d'exercer.

Les autres services offerts par l'Académie comprennent le *Journal of the Academy of Dentistry* et une analyse des régimes d'assurance dentaire qui couvre tout le continent nord-américain.

On peut obtenir de plus amples renseignements ainsi que des formules de demande d'adhésion en s'adressant à G. H. Craig, AGD Regional Vice-President and Director for Eastern Canada, 122 Bleecker Ave, Belleville, Ont.

d'un an à *Oral Surgery, Oral Medicine & Oral Pathology,* et l'affiliation gratuite pour un an, en qualité de membre étudiant, à l'American Association of Endodontists.

## La fluoration

### Drapeau ne s'opposerait plus à la fluoration

Le maire Jean Drapeau s'est déclaré satisfait de la décision du M. Claude Castonguay d'entreprendre immédiatement des pourparlers avec les autorités de Montréal au sujet de la fluoration de l'eau potable.

Le maire ne s'opposerait pas ainsi à la fluoration pour des motifs qu'il déclare être "démocratiques", mais il s'interroge à savoir s'il ne s'agirait pas plutôt d'une question de "responsabilité financière".

La section de l'hygiène dentaire du service de santé de Montréal a recommandé la fluoration à plusieurs reprises au comité exécutif de Montréal et tout indique que l'initiative du ministre pourrait conduire à des résultats positifs.

Le dernier rapport fait au comité exécutif de Montréal et recommandant la fluoration date du mois de septembre 1970, mais n'a jamais été rendu public et le sujet ne fut jamais débattu en assemblée du conseil.

A la mi-janvier 1971, le président du comité exécutif de Montréal, M. Gérard Niding, déclarait que la fluoration n'était pas une question prioritaire. La nouvelle prise de position de M. Drapeau est donc interprétée comme une très bonne nouvelle chez les experts de l'hygiène dentaire du service de santé de Montréal.

### Le fluor diminue de moitié les frais dentaires

Une enquête entreprise auprès de 1,300 enfants de la banlieue torontoise de North York révèle que l'eau fluorée a presque réduit de moitié le coût des soins dentaires.

Les services d'eau de la ville de Toronto ont commencé à être fluorés le 4 septembre 1963.

Une étude effectuée sur 250 enfants de North York âgés de cinq ans a démontré que le coût des soins dentaires pour ceux qui étaient nés 20 mois avant le début de la fluoration s'élevait environ à $63 par enfant, selon le Dr D. W. Lewis du Service de l'hygiène dentaire publique de la faculté dentaire de l'Université de Toronto.

Chez 304 enfants âgés de cinq ans nés 14 mois après la fluoration, les frais s'élevaient environ à $34.

Les coûts ont été calculés d'après le barème de l'Association Dentaire de l'Ontario.

## La recherche

### Syndrome de l'articulation temporo-mandibulaire: une étiologie psychosomatique

Un dentiste et un psychologue de l'Université Southern California à Los Angeles viennent apparemment de saper les théories traditionnelles sur les causes du bruxisme et des désordres qu'il engendre.

Le Dr Sylvan Schireson, professeur de périodontologie à l'école dentaire, et Lloyd Thomas, professeur assistant de psychologie ont étudié 10 patients atteints du syndrome de l'articulation temporo-mandibulaire(ATM).

La théorie traditionnelle, dit le Dr Thomas, veut que ce syndrome soit dû à l'habitude de serrer les dents par réaction à l'anxiété. Nous avons voulu vérifier cette théorie en étudiant quelle sorte de tension—anxiété ou frustration—pousse les gens à serrer les dents.

Les patients furent donc soumis d'abord à l'anxiété, en les avertissant qu'ils allaient recevoir des chocs électriques, puis en leur envoyant ces chocs électriques au moyen d'électrodes.

Leur niveau d'anxiété fut déterminé en observant l'augmentation de leur nervosité et de leur respiration au cours des expériences, ainsi qu'en recueillant leur compte rendu verbal après les expériences. Des électrodes étaient également fixées à leurs mâchoires pour mesurer la contraction de ces muscles. On observa cependant que l'anxiété ne les poussait pas à serrer ou à faire grincer les dents.

La théorie reconnue selon laquelle l'anxiété engendre le bruxisme se trouva donc contredite.

Les patients furent alors interrogés et ils déclarèrent que c'était le sentiment d'impuissance qui les faisait grincer les dents. Ils furent donc soumis à des déceptions au moyen d'une expérience dans laquelle ils devaient placer des morceaux de bois aux dessins géométriques dans des trous correspondants sur un tableau de bois. Ils étaient constamment perturbés durant l'expérience et empêchés de placer les morceaux sur le tableau.

Dans cet état de frustration, les électrodes révélèrent que le bruxisme se manifestait.

Les trois observations finales des chercheurs sont les suivantes:

1. Les personnes souffrant du syndrome de l'articulation temporo-mandibulaire serrent les dents plus fréquemment que les personnes qui n'en souffrent pas. Ces patients semblent réagir au sentiment d'impuissance selon un mode particulier utilisant le bruxisme.

2. Lorsque ces patients serraient les dents à cause de la frustration, ils le faisaient avec plus de force que ceux qui ne souffraient pas du syndrome ATM.

3. Dans un état de frustration, la tension des patients ATM était "plus longue, plus forte et plus fréquente" que celle des autres personnes.

"Les théories classiques enseignent que ce syndrome est un trouble mécanique, provoqué par une mauvaise occlusion", a dit le Dr Schireson. "Nos observations montrent que l'affection est plus d'origine psychosomatique que mécanique".

Le Dr Thomas déclare que lorsqu'il soigne des patients ATM, le dentiste ne doit pas nécessairement modifier leur occlusion. Il devrait leur enseigner à se détendre. Un régime mou reposerait les maxillaires et une attelle nocturne ou un appareil de contention bimaxillaire les séparerait.

Lorsque les patients étaient mis au courant immédiatement de leurs réactions tensionnelles, ils apprenaient aussi à les maîtriser. On pourrait donc enseigner aux patients la relaxation musculaire dans les situations de tension.

## Régime d'épargne-retraite d l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 mars 1971:

*Fonds à revenue fixe $11.750;*

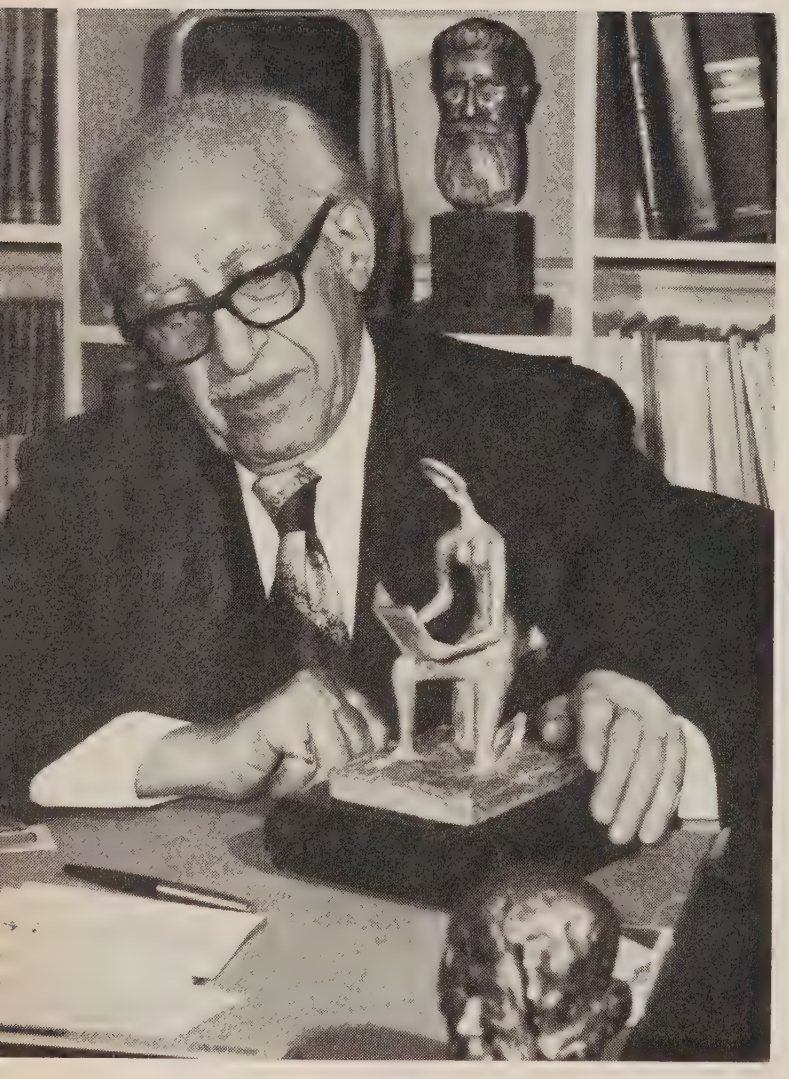
*Fonds d'actions ordinaires* $23.763.

L'avoir total (valeur marchande) du régime se montait à $10,741,530.31.

Au cours du mois précédent, les transactions, achats et ventes, ont été les suivantes: achat 3,000 actions de Aquitaine Canada Ltd; vente 3,000 actions de International Utilities et 2,000 actions de Canadian Tire Corp A.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

# Hyman H. Pearson, Artist and dentist



Doctor Hyman Pearson at his desk, with one of his aluminum statuettes.

In most definitions of dentistry, the term "art" usually appears, although most dentists think themselves more like scientists.

Not so Hyman H. Pearson, a Montreal dentist, whose labours in our particular brand of healing art are rare combinations of scientist and artist. He really believes in *Doctoris in Artis Dentalis Scientia* as written on his degree.

For as well as being an outstanding dentist for most of his 77 years, Doctor Pearson has distinguished himself in the world of art, using the skills and techniques familiar to every dentist.

You may remember him expound his theories on "retiring in dentistry" at the 1969 CDA convention in Montreal. He urged the taking on of hobbies.

"The main reason why hobbies are so useful in overcoming tension is that they put to work those unused talents. They provide a form of activity in which there is no need whatever to strive for success. There is no compulsion—no fear of failure," said Doctor Pearson.

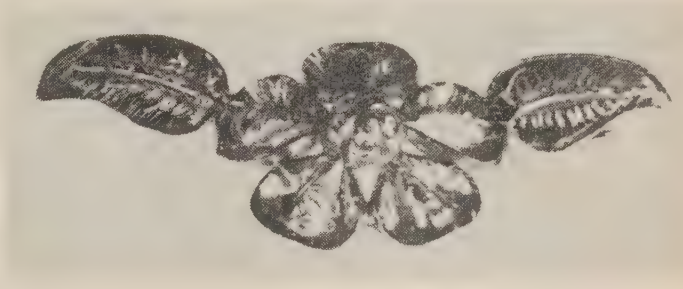
"And yet, they will produce a tranquillity and peace of mind—a far cry from dwelling on the neuroses, the aches and pains, arthritis and, to say the least, tension."

In the fall of 1968 a special one-man exhibition of paintings, sculpture and glass etchings was held by the Canadian Friends of the Hebrew University. Proceeds of the show were devoted to furthering the work of the Hebrew University of Jerusalem. Doctor Pearson helped found the university's school of dentistry.

His paintings and sculptures are in many collections in Montreal, Toronto, San Francisco, Seattle, New York, Boston, Albany, Detroit, St. Paul, Florida and St. John's, Nfld. The Montreal exhibition was the first time his work became accessible to a wide audience.

The Montreal-born dentist has been the recipient of no fewer than seven awards and has published some

The Costa Rican gold brooch above, dating back to 300 or 400 AD, bears a resemblance to one of Doctor Pearson's gold castings below. Dentists have adapted and refined the cire perdue process to meet the requirements of modern precision dental castings.



20 articles and papers of significance to the advancement of the profession at home and abroad. They include such subjects as radiology, endodontics, electrosurgery and rehabilitation.

Doctor Pearson graduated in dentistry from McGill University in 1917 but, back in 1906, he was already on his way to becoming an artist by attending Montreal's L'Ecole de Beaux Arts. His formal art education continued under the late Alexander Bercovitch, Herman Heilmlich, Eric Goldberg and Ken Gore of Gloucester, Mass. He was the founder and first chairman of the YM-YWHA arts and crafts department and spent many years encouraging the study of the arts.

In his own work, Doctor Pearson has always avoided the adoption of any one particular style or technique. He seeks to allow each subject and the art medium itself to dictate the modality. "Let us say that I create for recreation," says Doctor Pearson.

He is always interested in working with new materials. This curiosity led him to experiment and master techniques of sculpting with wood, soapstone and aluminum and etching on glass.

Over the years, Doctor Pearson took an active part in his profession as it progressed from a second-rate quasi-mechanical specialty into a highly respected branch of the healing arts.

He pioneered the use of the x-ray machine, the Page-Chayes handpiece, the Electro-Surg and the Cavitron. His work with them laid the groundwork for their acceptance in the Montreal area.

Doctor Pearson also found the time for organization activities in the profession. He has been a past governor of the College of Dental Surgeons of the Province of Quebec, a founder of the Montreal Endodontists Society, Montreal section of the American Academy of Dental Medicine, Montreal Alumni Chapter of Alpha Omega Fraternity as well as of the Hebrew University School of Dental Medicine.

Anyone visiting Doctor Pearson's office may well think he is in an art gallery. His office is crammed with his work including acrylic and oil paintings, terra cotta figurines, soapstone carvings, aluminum statuettes, glass etchings and enamel-on-gold trinkets and charms.

The enamel-on-gold casting process is familiar to all dentists as the *cire perdue* technique of using a wax pattern. Meaning "lost wax process," the technique was first used in Greece between 450 and 500 BC, says Doctor Pearson.

"I was first introduced to this technique in 1915 while I was a McGill dental student in the Old Montreal General Hospital. At that time I was taught how to carve an inlay in wax, invest it, boil or burn out the wax and cast gold into the resultant mould," says the Montrealer.

"Twist," an expression of the popular dance of the 1950's.

"It was in 1918, while rummaging through my programmed memory cells, that I decided to use this technique and make for myself a ring depicting my main interest of that time—dentistry and social involvement.

"I carved this symbol in wax and cast it in scrap gold. Worn out as it is now, it remains a constant reminder of my dental life, my social life and my hobby possibilities.

"Since then I have carved in wax and cast in gold many rings, charms, brooches as gifts to members of my family and friends," says Doctor Pearson.

As for glass etching, he says: "It is second nature, almost instinctive for us to be able to cut, carve, scribe or etch in almost micrometer measurements. We drill, carve shape, burnish and polish enamel dentine, gold, porcelain and plastics. How easy it is to transfer these professional skills to a hobby that will give mental relaxation and satisfaction, to create a product of our imagination to create for recreation."

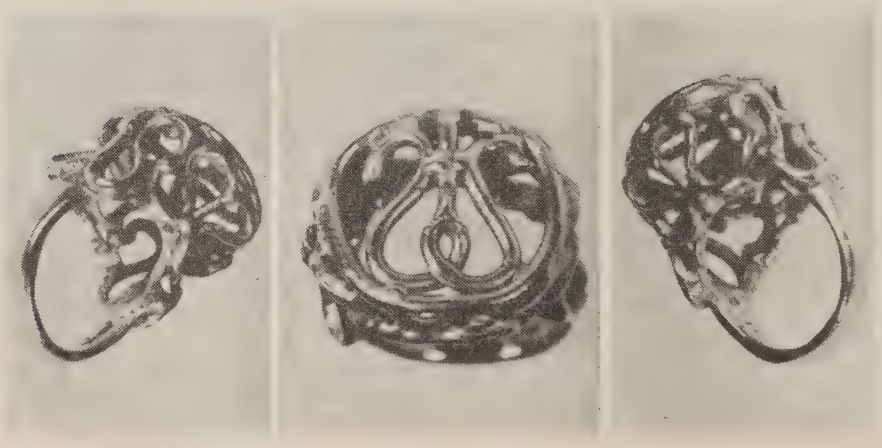
Doctor Pearson points to the use of a dental laboratory by British sculptor John Hatton in his designing and cutting of figures from large panels of glass. These were used for the new Shakespeare Theatre in Stratford-on-Avon and the rebuilding of the Coventry Cathedral.

Another example Doctor Pearson points to is the magnificent, artistically produced Steuben Glass. It is produced by skilled hands on a dental drill. Famous artists draw landscapes and figures on glass which is cut into specially designed forms.

For a dentist, "it is a simple matter" to trace on the outside of a glass a drawing or line print that is pasted on the inside, says Doctor Pearson. "No artistic skill is required for this. If one does have some ability in art, then an image may be sketched on the outside of glasses of various thickness using a wax marking pencil."

The outline of the design is first etched by a small round diamond or worn-down carborundum stone in the straight handpiece. Then the design may be cut deeper to concave forms that will appear convex or three dimensional in reverse. The water spray can be used as a coolant, he says.

Ornamental ring, cast by the cire perdue method.



"The finished cuts may be left rough as a contrast to the smooth surface of the untouched glass or polished with rubber wheels, felt cones and polishing paste."

Doctor Pearson believes that the genesis of art in dentistry began with the controversial address by London's Doctor William Hunter at McGill in 1910. Hunter ripped into the dentist's attempt to cure all oral ills by pure mechanics and urged the dental students and practitioners of the day to take a more biological approach.

The late A. W. Thornton, one of Doctor Pearson's lecturers, took Hunter seriously. As Pearson tells it, Thornton brought crown and bridge work out of "the mechanical slums into the more respectable and dignified world of art."

Dental anatomy was taught by drawing and then carving in vegetable ivory to reproduce nature, says Doctor Pearson.

"When learning full prosthesis, we were taught to create the size and shape of the teeth in their relation to the size and shape of the face; how to arrange these teeth in order to restore the shapes of the lips . . . and how to choose the colours and shades so that they would best harmonize with the colour of the skin, lips and eyes of the patient.

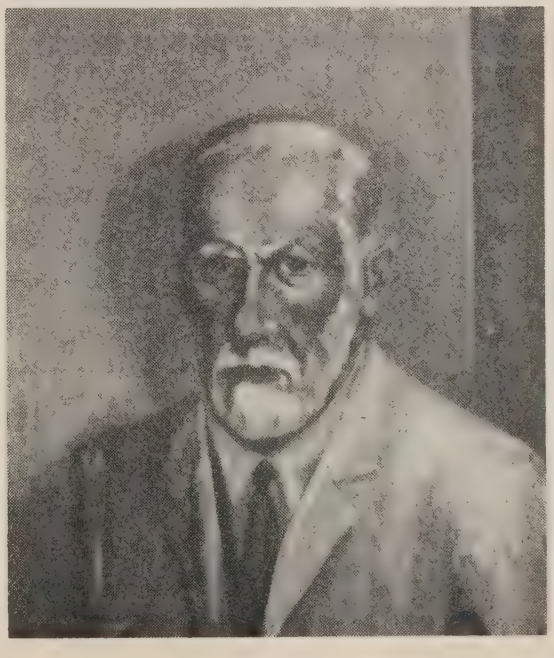
There were a number of lecturers that helped form the beliefs Doctor Pearson holds today. He sums it up by saying:

"The ultimate in restorative dentistry results from a marriage of the biological and mechanical sciences. But art is the catalyst—the enzymatic amalgamator of the multiplicity of sciences which makes dentistry what it is today."

Goblet depicts etching in glass.

Steel drum player. Painted in Tobago, 1966.

Portrait of Sigmund Freud.



# Manipulation and insertion of a composite resin for anterior and posterior cavity preparations

**E. R. Ambrose, DDS**
**D. R. Leith, DDS**
**Marvin Pinchuk, DDS**
**P. J. Hwang, DDS**
**Montreal**

*The authors have developed techniques for restoring occlusal, proximal and gingival cavities with Adaptic, a commercial composite resin. The material can also be used to splint anterior or posterior teeth. Matrix placement and contouring require considerably more care with posterior composite restorations than with comparable amalgam fillings. The aesthetic qualities of the material are pleasing but a judgement regarding its colour stability must await further observation. This also applies to tissue response and susceptibility to current decay under restorations and to the material's marginal integrity and permanence of contour.*

*Les auteurs ont mis au point des techniques pour la restauration des cavités occlusales, proximales et gingivales à l'aide de l'Adaptic. Ce composite peut aussi servir à la fixation des dents antérieures ou postérieures. La mise en place de la matrice et son contour demandent beaucoup plus de soin pour les restaurations postérieures à l'Adaptic que pour les obturations comparables à l'amalgame. Les qualités esthétiques du composite sont agréables mais une observation prolongée sera nécessaire avant de se prononcer sur la stabilité de sa couleur. Il en va de même pour la réaction des tissus, la susceptibilité à la récidive de la carie sous les restaurations, ainsi que pour la stabilité des bords et du contour de cette nouvelle matière obturatrice.*

Composite resins are the by-product of 10 years' search for a restorative material that will adhere to enamel and dentine.[1-4] This is a preliminary report of our experience with the clinical manipulation and insertion characteristics of one such material (Adaptic, Johnson & Johnson). We present it for information only, not as an endorsement of this or any other product.

## Properties

A composite resin restoration is a hard, brittle, insoluble, reasonably aesthetic replacement for tooth structure. Except for shear strength, the material is generally inferior to amalgam but superior to silicate cement and simple resins in compressive, shear and flexural properties, and abrasion resistance. The resin matrix is usually a dimethacrylate derived from bisphenol A. This becomes the matrix for a variety of inert filler substances treated with a methacrylate silane coupling agent to ensure adhesion between the filler particles and the resin matrix. The proportion of filler varies, being close to 80 per cent in the material we used.[5-12]

Composite resin mixtures have a thick, sticky consistency midway between that of viscous silicate cement and the more fluid simple resin systems.

Shrinkage during setting is minimal. In its expansion and contraction characteristics the set composite surpasses the simple resin system and matches amalgam. Heat conduction is much slower than in the latter material, however.

The set material has a glossy, resin-rich surface, particularly in contact with a matrix band. Finishing procedures or wear diminish the gloss, leaving a dull, rough surface of exposed filler particles, resin bonding matrix and some voids where filler particles have been dislodged. We do not yet know whether this has any influence on plaque formation, staining, soft tissue reaction or possible recurrent caries.

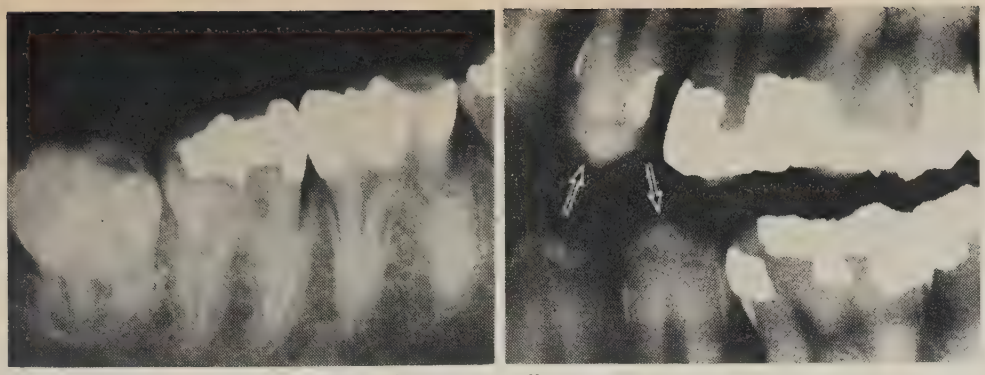


Fig 1 Radiographs show contrast between radiopaque and semi-radiolucent (composite) restorative materials. Composite restorations (arrows) in the maxillary first bicuspid (MO) and mandibular second bicuspid (MOD) have indefinite contours.

Fig 2 Basic components of the Adaptic composite used in the present investigation.

Unlike metallic restorative materials, most composite resins are radiolucent. This complicates the identification of recurrent decay under composite restorations, particularly in proximal areas (Fig 1). The incorporation of a radiopaque substance is highly desirable provided this does not detract from aesthetic and physical qualities of the material. (The Kerr Sybron Corporation has recently made its composite restorative, Blendent, more radiopaque.)

Further controlled clinical studies are in progress at Indiana University and McGill University to ascertain the life span of composite resins in anterior teeth and in posterior Class I and Class II restorations.[13, 14] The results will determine whether the material can be used successfully in other than a "semi-permanent aesthetic role" for anterior restorations. They may also define "safe limits" for the present materials and show the most efficient methods for manipulation, insertion and finishing of composite materials — essential information for the dental practitioner.

## Preparation of the material

The material, supplied as a Universal Paste and a Catalyst Paste (Fig 2), is dispensed and mixed according to the manufacturer's directions in the quantity desired. The filler tended to settle in earlier batches, but this problem has now been solved.

Colour matching is aided by the filler particles' ability to take on the tones of tooth substance. Additional white, yellow, brown and grey blending pastes give access to a wide range of common shades. The blender most commonly required is a recently developed opaque Universal Paste which confers opacity where desired.

The ingredients are mixed on disposable paper pads with wooden sticks or Teflon, composition or agate spatulas. Bare or plastic coated metallic spatulas cannot be used because they discolour the filler as it abrades the spatula.

Another composite material (Addent XV, 3-M Company) is now supplied in encapsulated form and can be mixed in a mechanical device like amalgam or silicate cement. The capsule, which has an injection nozzle, is then mounted in special forceps, and the dentist injects its content into cavity preparations which can be approached with this device. The capsules are colour-coded in four shades with an accompanying shade guide (Fig 3).

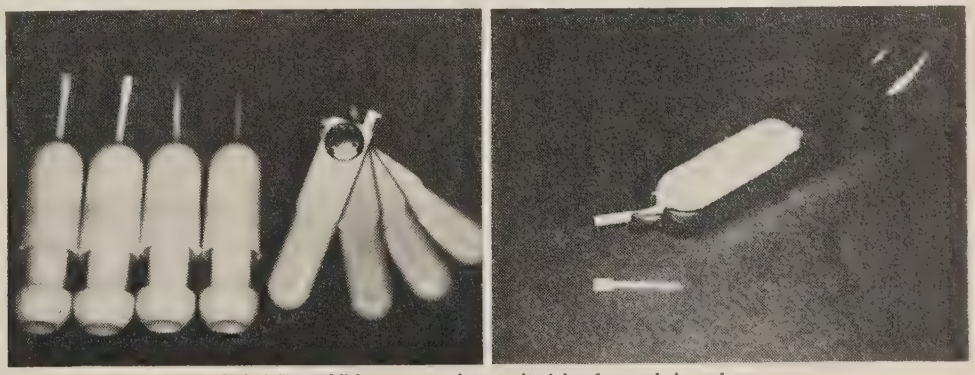


Fig 3 Encapsulated Addent XV composite suitable for mixing in a mechanical device. Colour-coded capsules are accompanied by a shade guide. After trituration, the capsule is mounted on specially designed forceps. The material is then injected into a prepared cavity.

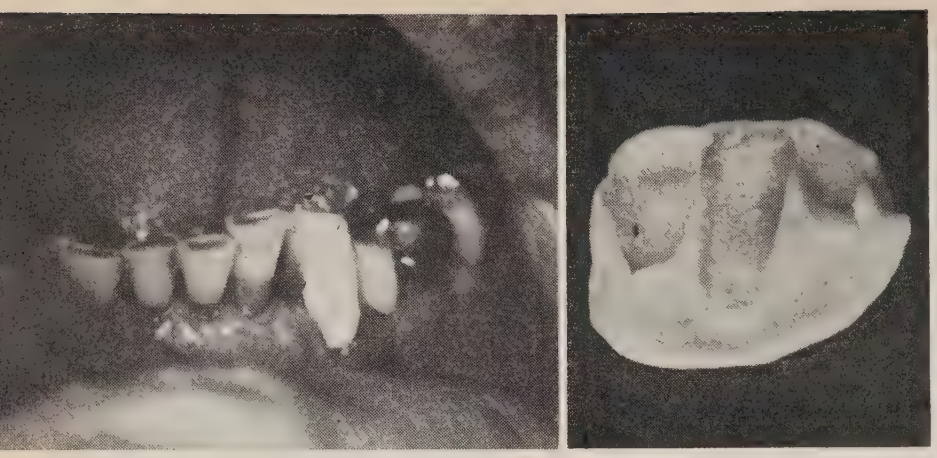


Fig 4 A lower cuspid temporarily restored before obtaining an index. Following completion of the preparation and pulp protection, the cold-cure acrylic index aids in depositing the composite material and establishing the basic contour.

Fig 5 Perforated brass tray with heavy-bodied thiokol impression material used for obtaining an index of a quadrant to be splinted.

**Manipulation and insertion**

*Simple Class III and Class V preparations* — Standard plastic instruments and matrix techniques, commonly used for silicate and simple resin procedures, will give good results with a little practice. The composite material lacks the bulk of a silicate cement; inadequate contouring is therefore a constant hazard. Gentle placement of the matrix strip and wedging are essential to ensure the correct contour of Class III restorations and minimal finishing at the margins.

The material we used may be shaped with a plastic instrument and allowed to set covered or uncovered. It cures completely either way. Lubricating the blade of a plastic instrument with a trace of silicone grease (Masque, Bosworth) simplifies the shaping and contouring of a Class V restoration. Instruments made from Teflon or Delrin are also helpful for this purpose.

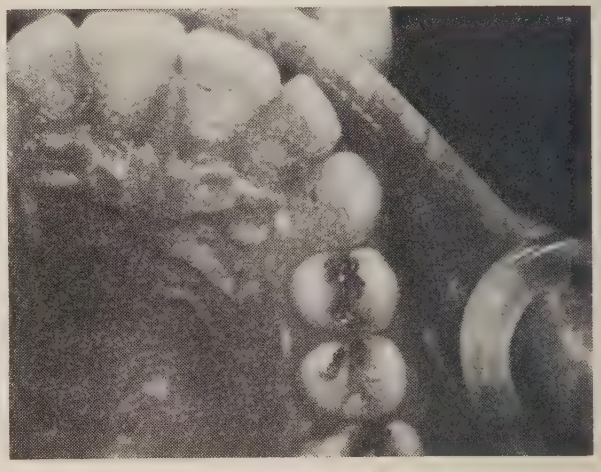


Fig 6 Centric contacts on sound tooth structure are recorded and preserved with copal varnish.

*Extensive Class III, IV and V preparations* — The tooth is rebuilt to its normal shape with gutta percha or a quick setting zinc oxide-eugenol cement (Fig 4). An index is then made in plaster of Paris, wax, compound impression material or cold-cure acrylic resin.

Following cavity preparation and ordinary pulp protection procedures, the composite material is packed to place with some excess. The matrix or index is then adapted. Either must remain absolutely stationary until the initial set has occurred. The material is very weak just prior to setting and may disintegrate or develop cracklines if it is prematurely disturbed. Furthermore, any movement of the matrix is apt to mar the surface finish.

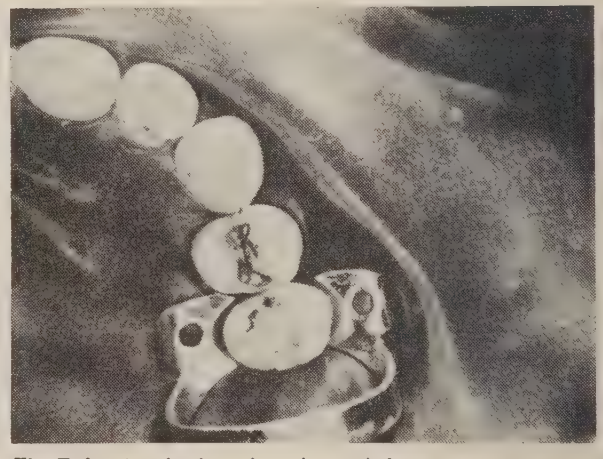


Fig 7 Anatomical and carious defects and centric contacts influence the Class I outline in the second bicuspid.

*Restorations in posterior teeth* — Composites differ radically from powdered gold, gold foil and amalgam. We use considerable pressure to insert these materials and depend largely on force to achieve adaptation and a satisfactory interproximal contact in Class II cavities.

Composites are soft and pliable, however, offering no resistance upon insertion. No force can be brought to bear on the instruments. Instead we must rely on other means to achieve close adaptation to the cavity walls, retention forms and slight over-filling with minimum voids for establishing an initial contour and any necessary contacts.

For a very short time after the composite is inserted, we can carefully "wipe away" some excess material until it begins to set. Thereafter, it must not be

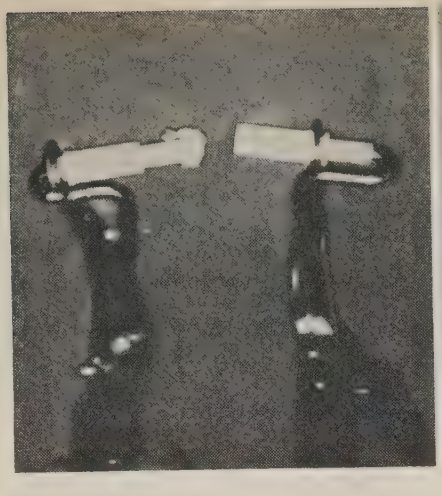


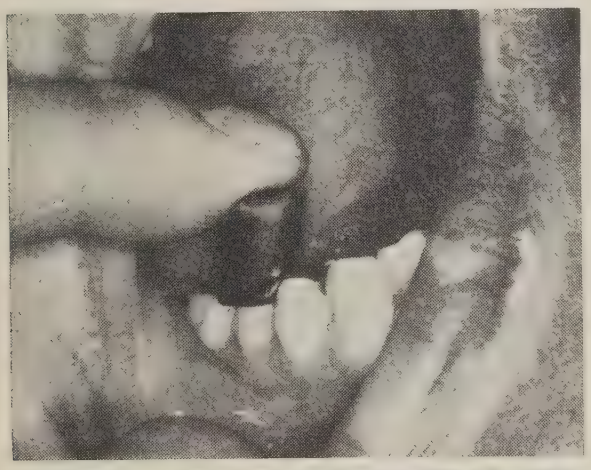
Fig 8 Amalgam carriers with Teflon sleeves and plungers. Set or unset composite is readily discharged without risk of binding.

Fig 9 Rubber interdental stimulators used for adapting the viscous composite mix Class I and Class II cavity forms.

disturbed until the setting process is over. Amalgam can be carved while it sets, but composite restorations can only be reduced with rotary instruments after they have set — an important economic consideration in the restoration of posterior teeth.

*Class I preparations* — We make an occlusal index for Class I preparations in teeth whose contour is reasonably intact.[15] Materials used for this purpose are wax, compound impression material, plaster held in the aluminum backing from artificial teeth, gutta percha, cold-cure acrylic resin or thiokol impression material carried in a sectional perforated brass tray. The latter is especially valuable for splinting procedures (Fig 5).

Any junction lines between old filling materials or minor carious defects are eliminated from the index before use. The preparation is then completed as for



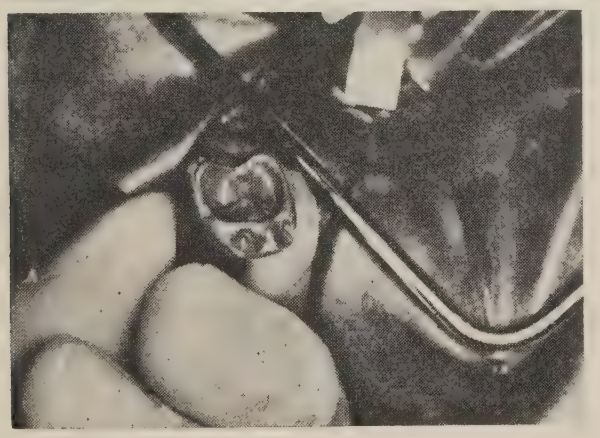


Fig 10 Preparation of the compound index for a mandibular second bicuspid. The index mirrors the occlusal topography of the bicuspid and the adjacent marginal ridge areas.

Fig 11 MOD cavity preparation and pulp protection for the tooth in Figure 10.

Fig 12 T-band in position and wedged.

Fig 13 The compound index, trimmed to permit its re-seating over the matrix band, is held securely until the composite hardens. The index is then withdrawn, excess flash is removed and the restoration is finished.

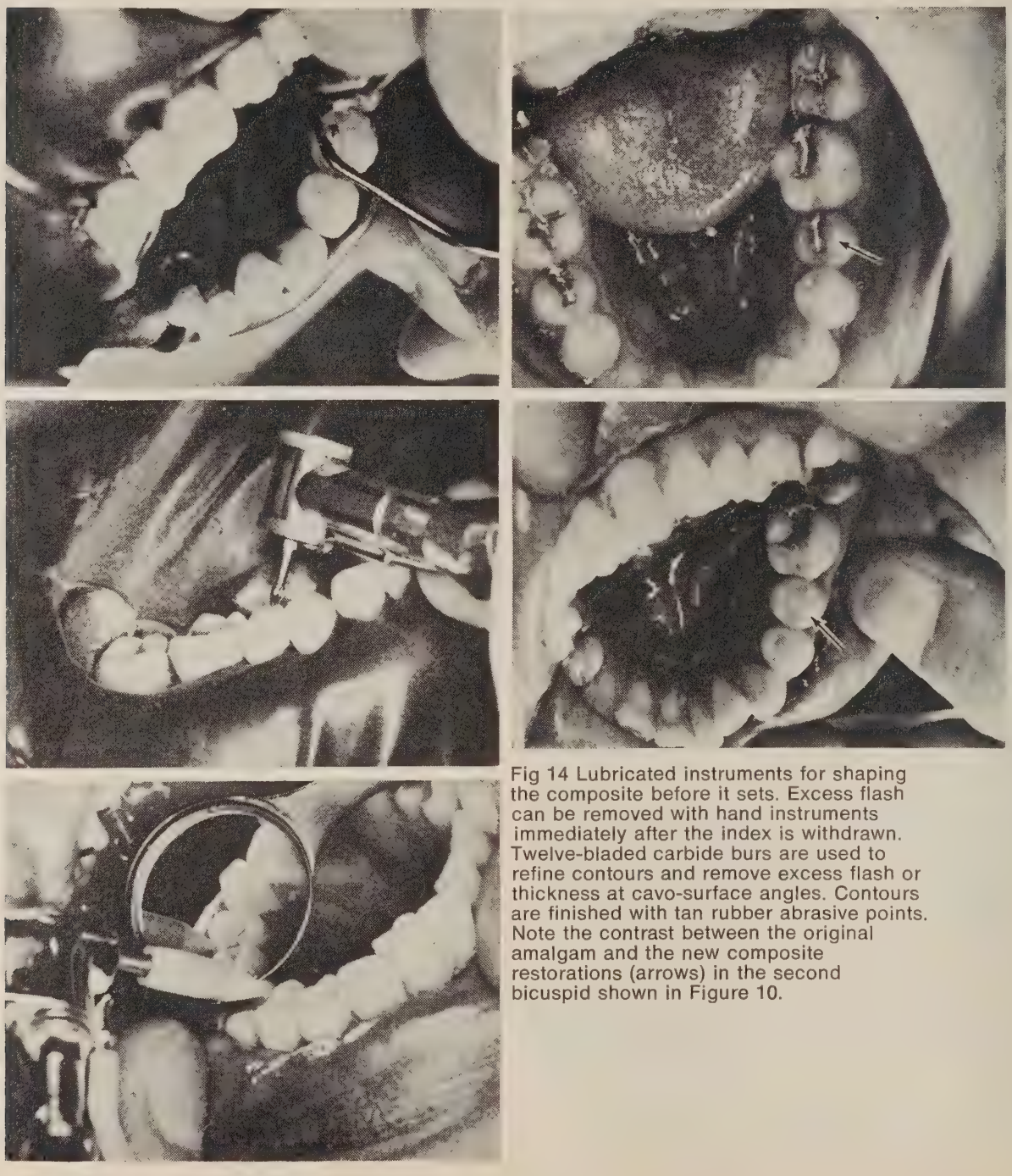


Fig 14 Lubricated instruments for shaping the composite before it sets. Excess flash can be removed with hand instruments immediately after the index is withdrawn. Twelve-bladed carbide burs are used to refine contours and remove excess flash or thickness at cavo-surface angles. Contours are finished with tan rubber abrasive points. Note the contrast between the original amalgam and the new composite restorations (arrows) in the second bicuspid shown in Figure 10.

amalgam. We try to preserve centric stops on sound tooth structure. These are marked with articulating paper or ribbon and covered with copal varnish to protect them while preparing the outline form (Fig 6, 7).

Pulp protection is similar to that provided under comparable amalgam restorations. We have found that virgin Class I and Class II preparations, cut to ideal depth, are more comfortable in the first two weeks with copal varnish applied to the dentinal tubules. A calcium hydroxide or zinc oxide-eugenol cement lining on the pulpal and axial walls, again followed by copal varnish, seems more comfortable in deeper cavities.

The composite mix can be introduced by means of conventional plastic instruments, amalgam carriers, "Jiffy Tubes"[16] or a disposable plastic syringe with the hub suitably trimmed to permit access to box openings. Amalgam carriers, with a barrel and plunger made of Teflon (Pulpdent Corp of America) (Fig 8), or instruments made from a composition material like Delrin (Premier Dental Mfg Co), are also good for picking up and depositing the material quickly. Even set composite slides easily from the Teflon carriers.

Common rubber interdental stimulators, trimmed to varying lengths and used with a rapid wiggling motion, are useful for adapting the material to teeth, particularly in Class II box preparations (Fig 9).

The higher the percentage of filler in the composite and the greater its viscosity, the more useful the rubber stimulator appears to be. And the material won't adhere to the rubber if the stimulator is rotated and wiped against the tooth.

The composite mix should be inserted quickly. The preparation is filled to excess and the index is pressed home, establishing the basic occlusal contour before the filling sets.

Upon removal, the index leaves a thin flash on the inclines which is easily trimmed or pushed off. The filling then only needs minimal finishing at the cavo-surface angle and occlusal adjustment.

*Contacts for Class II preparations* — Dead-soft matrix material (002 or .015 gauge) is ideal for composite resin restorations. The matrix band is securely wedged at the gingival cavo-surface angle. It is also burnished against the adjacent tooth and must be devoid of any tendency to spring away.[17, 18]

Open contacts may be corrected by cutting a small box-shaped cavity in the set composite at the contact site and adding fresh material. This should be done immediately whenever the matrix band can be removed without resistance; otherwise food impaction is apt to occur.

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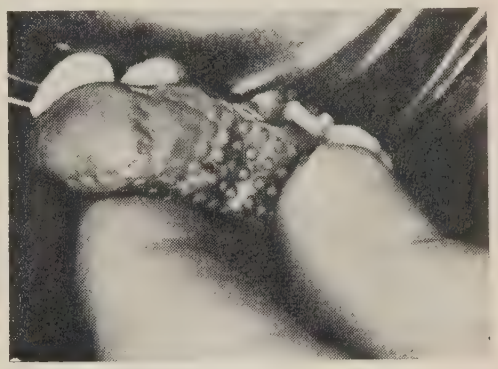

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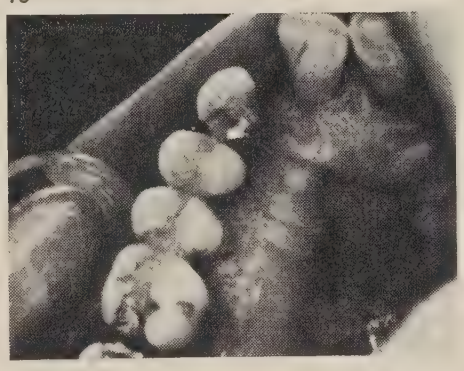

Fig 15 When splinting posterior teeth with long crowns, the gingival embrasures can accommodate triangular wedges of composite material.

Fig 16 Finished preparations and pulp protection in the teeth shown in Figure 15. Wedges control any gingival escape of composite material.

Fig 17 Thiokol index re-seated after depositing composite material in the prepared teeth. Same teeth as in Figure 15.

Fig 18 After the composite hardens, the index is withdrawn and any excess flash is removed. Same teeth as in Figure 15.

Fig 19 Teeth shown in Figure 15 after removal of the rubber dam. The composite splint is now ready for the final occlusal adjustments.

*MO and DO preparations in teeth with intact occlusal surface and marginal ridge* — The first step is to secure an index of the occlusal surface and marginal ridge as far as the contact point.

Following cavity preparation and pulp protection, we apply an Ivory No 1 matrix retainer with a suitably contoured band. The band may project slightly into the occlusal embrasure and is burnished against the adjacent tooth to facilitate positioning of the index. This must be checked before introducing any filling material into the cavity.

Sufficient composite material is deposited and adapted to the cavity walls to allow for some excess occlusally. The index is then pressed home.

*MOD preparations in teeth with intact occlusal surface* — Again, an index is made of the occlusal surface, the mesial and distal embrasures and the marginal ridges of the two adjacent teeth (Fig 10).

Following cavity preparation and pulp protection (Fig 11), we adapt a brass or dead-soft stainless steel T-band (Pulpdent Corp of America) to the preparation, firmly wedging each gingival cavo-surface angle with hard wooden wedges (Getz Wizard Wedges or Premier Wedges, Hawe) (Fig 12).

Once again, the band projects slightly into the occlusal embrasure and is burnished firmly against the adjacent teeth.

We prefer a T-band in place of the customary universal retainer and matrix band because it has less tendency to draw away from the contact areas.

The soft matrix metal can be adapted to the buccal and lingual walls of the box and also stretched into the contact areas.

After inserting and adapting the composite material, the index, previously trimmed and tested for seating, is replaced to establish the pre-existing occlusal anatomy, marginal ridges and occlusal embrasure contours (Fig 13).

*Preparations in mutilated posterior teeth* — We can restore the defective areas with a quick setting cement, check the occlusion, prepare an index, complete the preparation and restore the tooth with a composite filling in one sitting.

Alternatively, we can complete the preparation and restore the tooth temporarily with a fast setting zinc oxide-eugenol cement. An index is secured at the next appointment. And after removing a sufficient amount of the sedative dressing the tooth is restored with composite, using the index or a suitable matrix or both.

## Finishing

Composite restorations require careful adjustment to eliminate any possible occlusal interference. This is done with white carborundum stones, finishing diamonds (Star Dental Co), twelve-bladed friction grip carbide burs specially designed for this purpose (Jet IV burs, Beaver Dental Mfg Co),[19] lubricated abrasive discs and tan rubber abrasive points (Dedeco) (Fig 14).

We prefer the twelve-bladed carbide burs for dry finishing at a reduced air pressure. The cut composite stands out from the tooth structure when dry and can be trimmed with less risk of reducing enamel or centric stops.

## Other uses for composites

*Cores* — Composite resin can be used in core structures, in combination with pins, to provide adequate coronal substance for a casting. The material thus serves as an alternative to cast cores or amalgam pin cores.

*Splinting* — Composite resin can be used for this purpose in older patients or for long-term "temporary" splinting.

We like the following method for splinting posterior teeth with intact compound amalgam restorations and long clinical crowns. The large gingival embrasure between such teeth can accommodate a strong triangular wedge of composite which joins the teeth occlusal to but well clear of the interdental papillae (Fig 15).

Using a perforated brass tray and tray type thiokol impression material (Neoplex, Surgident), we record the contours of the teeth and restorations before making any preparations (Fig 5). After applying rubber dam and removing the restorations, boxes are cut where required to provide sufficient bulk for the splint. This is followed by pulp protection and the placing of short wedges level with the gingival walls of the boxes (Fig 16).

Composite is introduced to as many occlusal and box preparations as possible, and the thiokol index is re-seated after working the composite well into the preparations. After it sets, the index is removed. Additional composite is introduced to any unfilled preparations and the index is re-seated until all the prepared teeth are splinted (Fig 17). Any excess flash can be broken away after the index and wedges are withdrawn.

The rubber dam is removed prior to finishing the occlusal surfaces and other contours. Though unrelieved amalgam fillings may wear a little or fracture, this does not happen with composite resin. Careful occlusal adjustment of multiple composite restorations is therefore especially important (Fig 18, 19).

Splints for anterior teeth can be made in the same manner. Besides thiokol impression material, we can employ more rigid agents like plaster, compound or cold-cure acrylic resin to obtain an index of these teeth. These materials can yield impressions of the labial and lingual tooth surfaces. The next step consists of making Class III box preparations using a lingual approach. The addition of a pin (Whaledent TMS .021 pin) at the gingival box wall provides stability for the "temporary-permanent" splints that some patients need.

## Conclusions

The composite material Adaptic gave reasonably aesthetic restorations. Matrix placement and contouring required much more care with posterior fillings of the material than with similar restorations of amalgam.

Posterior restorations completed in this project must await further observation to determine the future use of composites in Class I and Class II preparations. Colour stability will largely determine their future usefulness in anterior teeth.

Marginal integrity, permanence of contour, tissue response and susceptibility to recurrent caries will decide the extent to which composites can replace other direct restorative materials. The dimensions and the retention and resistance forms of conventional Class II cavity preparations may have to be modified for these materials. This and the effects of various insertion techniques are the subject of a continuing laboratory and clinical investigation.

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## Excerpts from the CDA Code of Ethics

*Obligations to the Profession*

1. Every dentist must maintain the honour and the integrity of the profession.

2. He must abstain even in his non-professional activities from any act which could lose him the respect of the profession.

3. Every dentist should contribute to the advancement of his profession by giving whole-hearted support to local, provincial and national associations.

*Patents and Copyrights*

The dentist has the obligation of making the fruits of his discoveries and labours available to all when they are useful in safeguarding or promoting the health of the public. Patents and copyrights may be secured by a dentist provided that they and the remuneration derived from them are not used to restrict research, practice, or the benefits of the patented or copyrighted materials.

*Lending of Name*

A dentist does not lend his name or written testimonial, whether for reward or not, to any medical, surgical or dental appliances or apparatus or any drug or medicinal or dental preparation or material which is sold or given to the public.

*Unjust Criticism*

When examining or treating a patient the dentist must be most circumspect in his remarks about the treatment the patient has been given previously and refrain from uttering any appraisal of or judgement on their quality.

*Emergency Service*

1. If the patient consults a dentist in case of emergency or in the absence of his regular dentist, the dentist consulted may give the necessary treatment but must refer the patient as soon as possible to his regular dentist to whom he will give all necessary information about the case.

2. In case of emergency when it is impossible to obtain the consent of the parents or legal guardian of a minor or an incompetent person, the dentist must give the necessary treatment.

# FDI approved system for encoding the human dentition

**Ivan Hrabowsky, DDS**
**James Sim, DDS**
**St. Catharines, Ont**

*The Fédération Dentaire Internationale has adopted a simple numerical method which identifies each tooth by two digits. The first digit denotes quadrants and shows whether the tooth belongs to the permanent or primary dentition; the second digit identifies the individual tooth. The system is easily adaptable to typewriter and data processing keyboards and the digit combinations can be readily transposed to other languages. It was devised to facilitate communication between dentists and satisfy the growing need for rapid data processing.*

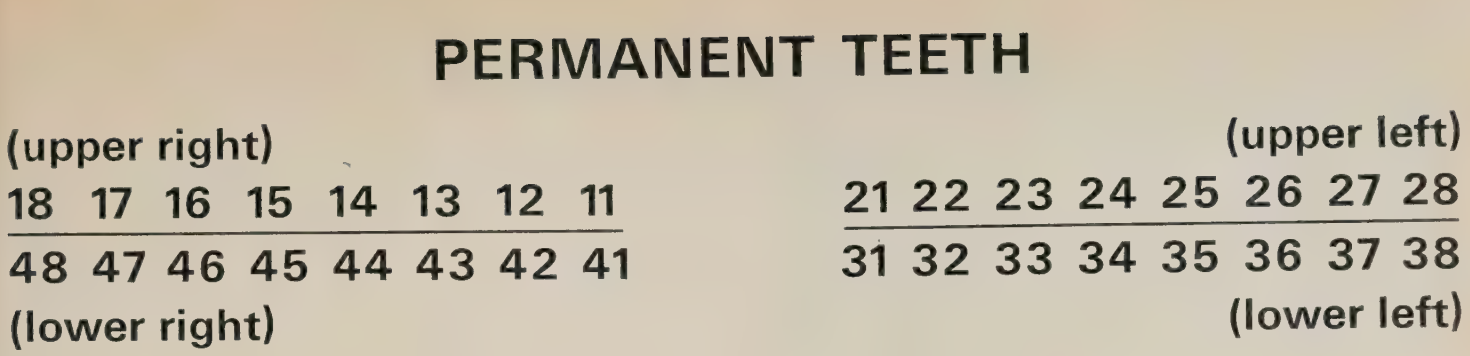
*La Fédération Dentaire Internationale a adopté une méthode numérique simple qui désigne chaque dent par deux chiffres. Le premier chiffre indique le quadrant et la dentition, temporaire ou permanente, à laquelle la dent appartient. Le second désigne la dent en particulier. Ce système convient aux claviers de machines à écrire et à la transformation des données tandis que les combinaisons de chiffres se transcrivent aisément d'un langage à un autre. Il a été conçu pour faciliter la communication entre dentistes et répondre au besoin croissant d'un traitement rapide des données.*

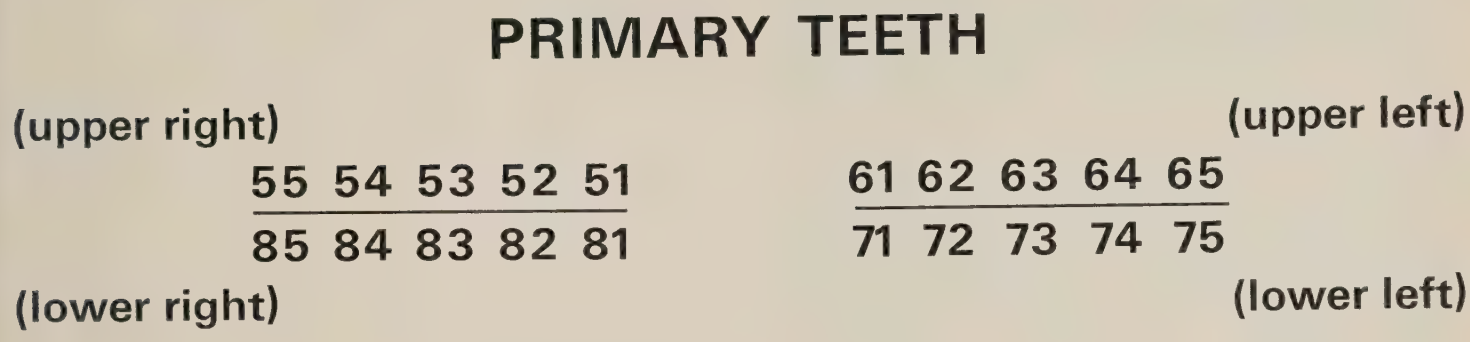
Recent trends in communications technology and data processing have exposed shortcomings in current methods of designating and encoding teeth. This article deals with a two-digit numerical system which fulfils the cardinal requirements of simplicity, practicality and compatibility with modern data processing procedures. Originally described in 1966 by Viohl,[1] the method was adopted last year by the General Assembly of the Fédération Dentaire Internationale.[2]

## Current systems

Quadrant designation,[3-8] achieved by combining graphic symbols (⌋⌊⌉⌈) with digits (1 to 8 for permanent teeth) and Roman numerals (I to VIII) or upper or lower case characters (A to E for primary teeth), has long been popular in dentistry. This method has several drawbacks, however. The combination of symbols, digits and characters is cumbersome and not readily adaptable to typewriter or data processing keyboards. Its use by persons who view and chart teeth from the lingual aspect (reverse image charting) can be a source of confusion. And the letter characters cannot be easily transposed to languages other than those based on the Roman alphabet, thereby restricting the usefulness of this system.

A variant, using characters to identify quadrants (UL, UR, LL, LR) and digits or characters to designate teeth, has also enjoyed some popularity. But since the quadrant characters in this system are derived from English words, they have no meaning in other languages. Moreover, there are three units (either two letters and one digit, or three letters) to be encoded. And the Roman characters again limit the universality of this method.




A third method consists of some sequential arrangement of successive numbers or alphabetically arranged letters, each designating a tooth.[7, 8] One system in this series (Universal System) numbers permanent teeth from 1 to 32 and designates primary teeth from A to T. The sequence begins with the most distal tooth in the maxillary right quadrant and proceeds in a clockwise manner around the arches. Its major drawback is the necessity for memorizing 32 digits and 20 characters and associating these 52 unrelated symbols with individual teeth. Not only can this prove to be a source of confusion, but it also precludes instant recognition of particular teeth and quadrants.

**Two-digit system**

The Fédération Dentaire Internationale has therefore adopted the two-digit combination. The first digit identifies quadrants and dentitions and the second digit denotes individual teeth. Numerals 1 to 8 are used in the first digit, as follows:

1 — Maxillary right permanent
2 — Maxillary left permanent
3 — Mandibular left permanent
4 — Mandibular right permanent
5 — Maxillary right primary
6 — Maxillary left primary
7 — Mandibular left primary
8 — Mandibular right primary

Moving clockwise, the sequence begins with the upper right quadrant and ends with the lower right quadrant.

Numerals 1 to 8 are also used in the second digit, as follows:

1 — Permanent or primary central incisor
2 — Permanent or primary lateral incisor
3 — Permanent or primary cuspid
4 — First bicuspid or primary first molar
5 — Second bicuspid or primary second molar
6 — Permanent first molar
7 — Permanent second molar
8 — Permanent third molar

Combined first and second digits can then readily identify any one of 52 teeth. For example, 11 would signify a maxillary right permanent central incisor; 24, a maxillary left (permanent) first bicuspid; 36, a mandibular left permanent first molar; 64, a maxillary left primary first molar; and 85, a mandibular right primary second molar.

**Advantages**

The two-digit system is readily adaptable to typewriter and data processing keyboards. It can be used with equal facility by examiners who view and chart from the buccal or lingual aspects. Consequently, there is no danger of reverse image confusion. Each tooth is designated by a simple two-digit combination. If desired, the digits may be separated by a period (1.6) or a dash (1-6). Alphabetic and graphic symbols are entirely eliminated.

A most attractive feature of the method is the instant recognition of particular teeth and quadrants. The second bicuspids, for example, are represented by 15, 25, 35 and 45, and their primary predecessors

by 55, 65, 75 and 85. The four third molars are designated as 18, 28, 38 and 48.

The digits denoting quadrants can be readily memorized. Those designating the teeth are already in common use.

Digit combinations, when read as eight-five or two-one, rather than eighty-five or twenty-one, can be easily translated into any other language. All that is necessary is mastery of the digits from one to eight in the required language. Eight-five thus becomes *huit-cinq* in French (rather than *quatre-vingt cinq*) or *acht-fünf* in German (instead of *fünf-und-achtzig*); and two-one is rendered in French as *deux-un* (not *vingt-et-un*) or in German as *zwei-eins* (not *ein-und-zwanzig*).

## Summary and conclusion

A simple, effective system is described whereby each tooth is designated by a combination of two digits. Teeth in the permanent dentition carry first digits 1 through 4; those of the primary dentition have first digits 5 through 8. The same teeth in each of the four quadrants are designated by identical second digits.

The FDI has adopted this system in order to facilitate rapid communication between dentists and satisfy the growing need for efficient data processing. The aim has been to produce a universally applicable and workable system.

Grateful acknowledgement is expressed to S. Keiser-Nielsen, Copenhagen, leader of the working group on forensic odontology, FDI Commission on Dental Research, for his valuable advice in the preparation of this paper.

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## Excerpts from the CDA Code of Ethics

*Professional Secrecy*

Information of a professional or personal nature between a dentist and patient must be kept in strict confidence except as required by law.

*Records*

Adequate records of diagnosis and treatment of each patient should be maintained.

*Professional Fees*

1. Fees should always be determined fairly.

2. The dentist should tell the patient in simple, understandable terms the kind of treatment he recommends and give an estimate of his fee for such treatment.

3. On the patient's request the dentist must render him an itemized statement.

*Collection of Accounts*

1. The dentist must maintain control of his accounts at all times.

2. Accounts must be rendered on a printed form bearing the dentist's name.

3. The dentist may for purposes of delinquent accounts accept payment from an agency only on amounts collected by the agency.

4. This does not preclude the utilization of any methods of collection or rendering the accounts deemed acceptable by provincial legal dental bodies.

*Right to Refuse Treatment*

1. Except in an emergency, the dentist has the right to refuse treatment for either professional or personal reasons.

2. A dentist having undertaken the care of a patient may not neglect the patient or discontinue his service without first having given notice in advance.

3. The dentist may cease to treat a patient provided he gives him formal notice in advance. He must endeavour to arrange for continuity of treatment and for this purpose provide the necessary information.

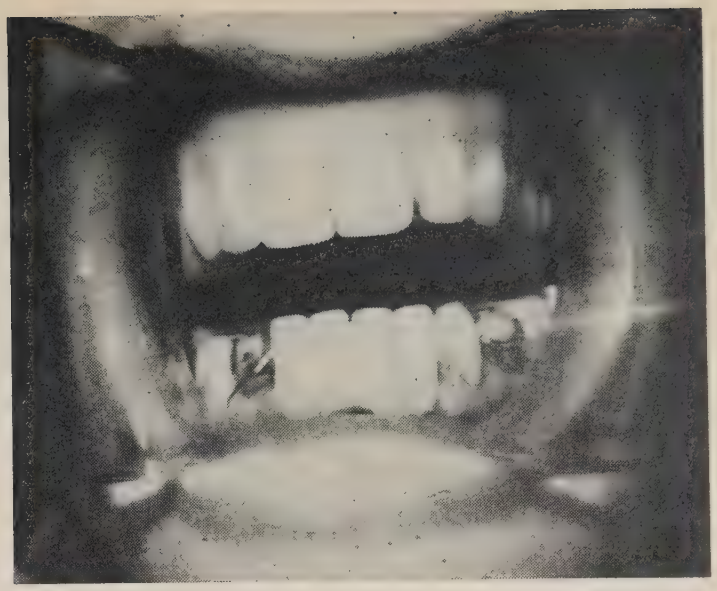


Fig 1

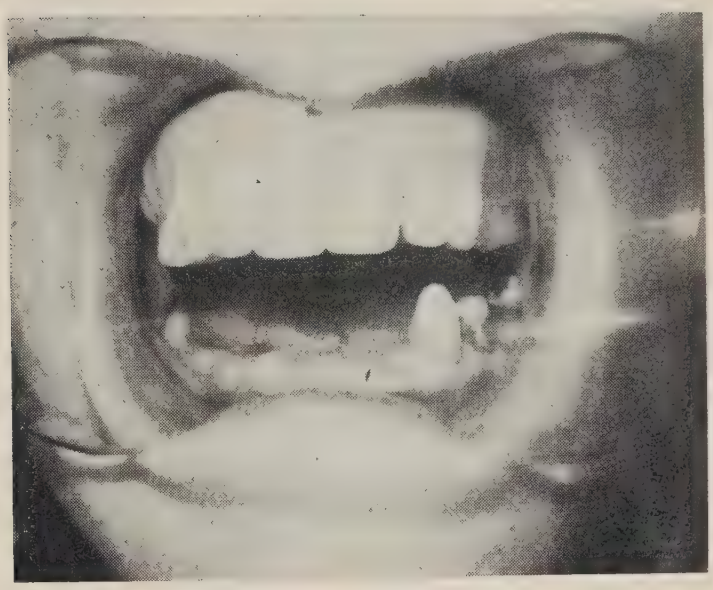


Fig 2

# Rehabilitation of a partially edentulous patient with an endosseous implant

**Milan Somborac, DDS**
**Collingwood, Ont**

Dental implants fall into two categories: natural substances and alloplastic implants. The former comprise autogenous implants (tooth buds, impacted adult teeth, avulsed endodontically treated teeth), heterogeneous implants (like bovine bone) and homogeneous implants (derived from tooth banks). Alloplastic implants are used as subperiosteal or mucosal inserts or as endosseous devices.

This article describes the successful use of endosseous implants in a patient with advanced tooth loss.

## Report of case

*History and examination*—The patient, a 61 year old woman, came for treatment of the lower right cuspid which served as an abutment tooth for a removable partial denture (Fig 1, 2). Clinical and radiographic examination revealed that the tooth had been fractured at the gum line. The maxilla was edentulous. She had only four remaining teeth in the mandible: lower left second molar and first bicuspid and the right and left cuspids. The cuspids and the bicuspid had periodontal involvement due to unfavourable stress exerted by the partial denture (Fig 3, 4).

Conventional methods of treatment which would eventually lead to a complete lower denture were explained to the patient. The use of implants and a fixed bridge were suggested as a more promising alternative.

*Treatment*—Following a complete intra-oral radiographic survey, casts were made of both jaws. Implants were then designed and cast in cobalt-chrome.

Using local anaesthesia and intra-muscular sedation at the next appointment, the lower left bicuspid was treated endodontically and stabilized with a Kirschner wire (Fig 5). After extracting both cuspids, the implants were inserted (Fig 6, 7). The technique for insertion is simple and has been described elsewhere.[1, 2]

After taking an impression, a temporary splint was fabricated to make the implants functional. Further treatment was completed in the conventional manner (Fig 8, 9).

Fig 3

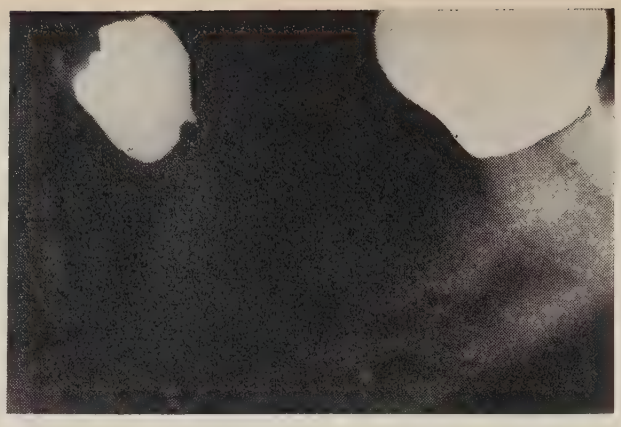


Fig 4

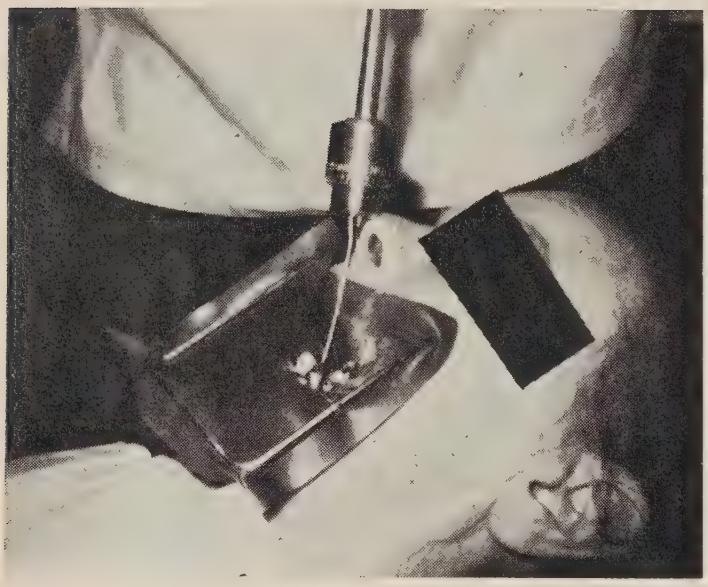


Fig 5

*Postoperative course* — Subsequent follow-up examinations during an 11 month period showed uneventful healing with good functional and aesthetic results.

## Discussion

Endosseous implants consist of pins (tripods, bipods, endodontic stabilizers), spires (screws, vent plants) and blades. They appear to be highly promising for prosthetic rehabilitation of partially or fully edentulous patients.[1] The blade type endosseous implants originated by Linkow[2] are particularly versatile. The problems which arise from root resorption, rejection, alveolar bone resorption, epithelial inclusions, extensive surgery and insufficient area of contact between the bone and the implant can be obviated by using properly designed blade implants.

Endosseous implants of various types have been designed and investigated extensively by Linkow,[1] Cherchève,[3] Scialom[4] and Muratori.[5] Progress in this

Fig 6

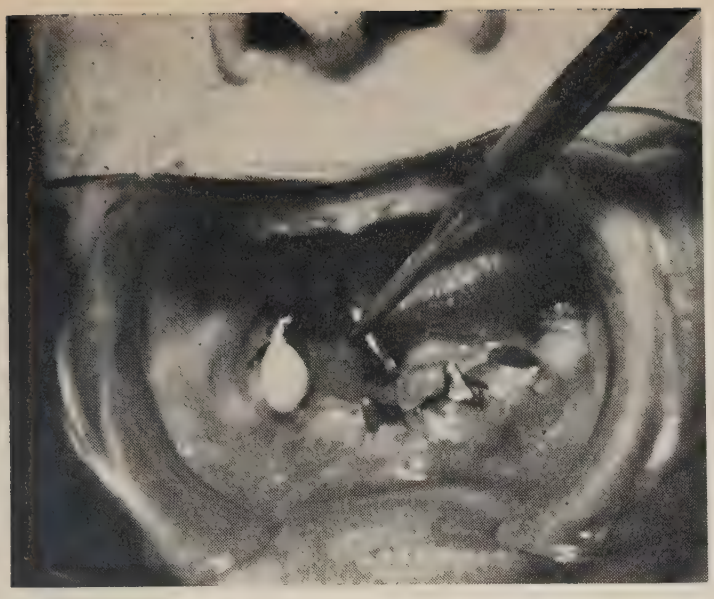


Fig 7

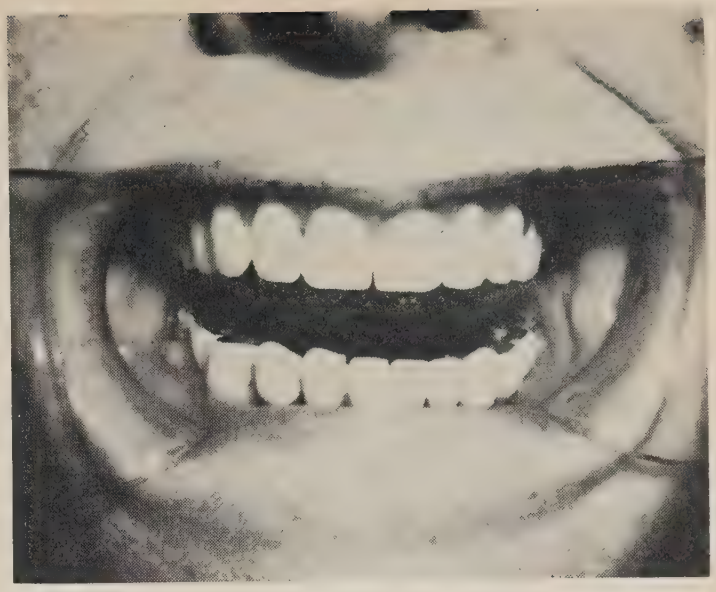


Fig 8

field is gradually expanding as more interest is kindled among practitioners. It is possible that endosseous implantology may in the future be a standard subject for undergraduate study.


**Summary**

The use of endosseous implants in the treatment of advanced tooth loss has been described. They may in some cases be more acceptable than dentures, but further experiments are necessary before long-term results can be evaluated.



Doctor Somborac's address is 22 Second St, Collingwood, Ont.



1 Linkow, L. I. Endosseous oral implantology; a seven-year progress report. Dent Clin N Amer 14:185, 1970.

2 Idem. Endosseous blade-vent implants: a two-year report. J Prosth Dent 23:441, 1970.

3 Cherchève, Raphaël. Les implants endo-osseux; technique pratique et coordonnée d'implantation endo-osseuse en odontostomatologie. Paris, Maloine, 1962.

4 Scialom, Jacques. Implants aiguilles (pin implants). J Oral Implant Transplant Surg 11:18, 1965.

5 Muratori, G. Metodo personale di impianti endo-ossei a barra di fissazione rimovibile. Minerva Stomat 14:95, 1965.

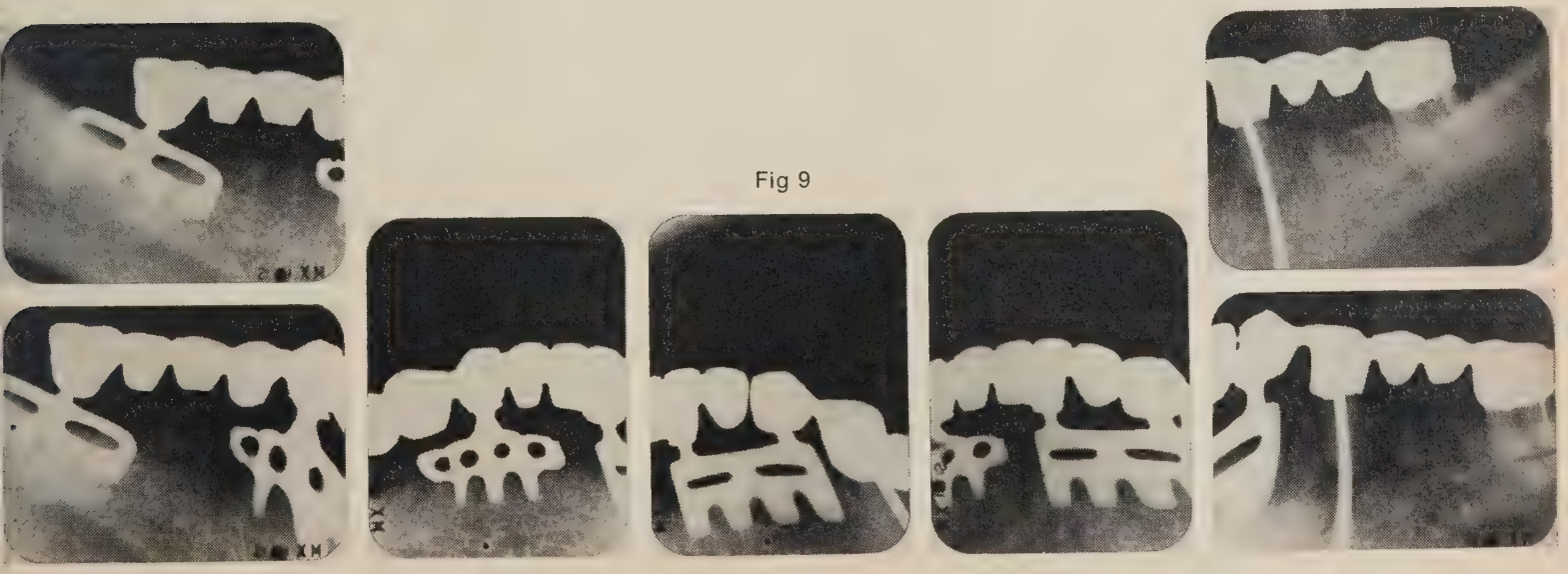



Fig 9

# Graduate education: The views of Canadian students in the United States

**J. M. Gourley, BSc, PhD**
**Halifax**

Graduate education is certain to benefit individual dentists and dental educators, leading to an improvement in the standards of the profession. To test the validity of this hypothesis, Doctor Gourley, a Dalhousie University professor on graduate study leave, decided to poll some of his fellow Canadians at an American university.

He interviewed 10 students in various departments of the dental school at Indiana University. They comprised approximately 25 per cent of all Canadian graduates attending American universities. Doctor Gourley's purpose was to ascertain their views about graduate education and their personal experience in the education process.

Five of the students had been at Indiana University for one year; the other five had nearly completed their two year program. Eight had spent at least one year in general practice in Canada before returning to graduate school; four of these had practised for more than seven years. All of the students said they intended to return to Canada and accept teaching positions after completing their graduate training.

Support for their university study consisted of grants from Canadian universities, various scholarships and loans, and personal financing.

## Why graduate training?

Asked why he decided to pursue graduate education, one student said he was bored after 11 years of general practice and felt he had gone as far as possible with his educational background. "General practice lacks challenge and the work is monotonous," he said, adding that he could not see himself in practice for the rest of his life. He realized that he would take a financial loss as a graduate student and later as a teacher, but felt that such a life opened greater opportunities for creativity and intellectual development.

Another student expressed dissatisfaction with his work, claiming that "my clinical services have not advanced since I left dental school nearly 10 years ago, despite attendance at table clinics and short courses." Though he had limited his practice, he was not conversant with many of the required techniques and felt that he was deceiving the public by living a "common law" existence in his specialized area.

One respondent, realizing that dentistry is a wide field, admitted that he was not prepared to deal with all problems he would face. Handicapped by cost and time considerations, he had no time to evaluate each case fully and choose the best methods for treatment. He wanted the opportunity to contribute to the profession with better dental techniques and in public health education.

Two students reported they had been persuaded to return from general practice and were acquiring the necessary background for teaching. The others were motivated toward academic dentistry and felt that a broader knowledge of their specialty was necessary before they could work in a university.

## US versus Canadian schools

Weighing the relative advantages of American and Canadian schools, most students said the deciding factor was a school with a well developed graduate program in the desired specialty area. It was pointed out that Canadian universities do not have some of the courses or are very limited in their intake of graduates.

One student said that the only Canadian school that offered a graduate program in his discipline had also been his undergraduate dental school.

Another had made his choice for a department with a large full-time faculty so that he would receive diverse opinions and training techniques. He felt there would be fewer disruptions in such a department if one of the faculty spent much time outside the school.

Most respondents had also considered the status of related departments at the dental school.

## Principal benefits

Listed as one of the main benefits of graduate education was the opportunity for acquiring up-to-date factual knowledge in the desired specialty.

Several respondents reported greatly increased proficiency derived from applying techniques they had not been taught as undergraduates. Others praised the opportunity of getting back to basic science principles which enhanced their understanding of dentistry.

There was general agreement that the variety of clinical material in a graduate school not only breeds greater tolerance toward different treatment techniques but also encourages a more critical view of so-called "accepted ideas and methods," particularly those lacking scientific proof.

Many felt that graduate training fosters prudence in adopting new materials or embracing a new philosophy. Several said: "We can better evaluate the research literature once we have learned to appreciate the problems of dental research, especially in clinical areas." All described their experience as an opportunity to update undergraduate learning and catch up with recent developments in dentistry.

Several of the students remarked about important differences between undergraduate and graduate instruction. They recognized that there is too little time to teach undergraduates all the different techniques; only in advanced courses can a broader basis be achieved. The main aim in undergraduate training is to give the student serviceable techniques for his profession without necessarily explaining why. Graduate courses, they found, are designed to question many of the techniques. One respondent even thought that the undergraduate student does not need to think or use any initiative. "Provided he can copy the demonstrations and has a good memory, he will pass undergraduate but not graduate courses," this respondent concluded.

## Drawbacks

While most students praised their graduate training experience, there were some individual criticisms. One respondent said that senior faculty members gave too little time to the graduate student and his program. He felt they were not fulfilling a responsibility they took on in accepting a student.

Others asked that graduate students be given more responsibility, particularly in supervising and teaching undergraduate courses. They claimed that present course requirements are too rigidly structured and called for more flexibility in tailoring each student's program to his personal goals.

"Requirements for technique courses should be reduced to allow more time for study in related disciplines" and "students' progress should be evaluated individually, not on a numerical basis," they maintained.

There was also a strong plea for more co-ordination with pure science and medicine courses outside the dental school, particularly those related to dental materials and oral diseases.

## Research projects help

There was unanimity that research projects are valuable as a learning experience. They show the student how to organize a project, use test equipment, evaluate the data and present his findings in the style required by scientific journals.

But some respondents felt their clinical projects lacked validity because of the short time available to evaluate visible changes. They recommended an earlier start in the research, perhaps at the beginning of a graduate program, or that students cooperate over several years on one project.

## New attitudes

Without exception, all the students displayed a more open attitude toward dental problems. Admitting that as undergraduates they had been very categorical about methods and materials, they now realized that nothing was clearly right or wrong.

There was also more interest in why a problem had occurred and how it might be treated in the context of the whole oral environment. One student explained this by saying that a return to general practice would be very frustrating because he would have to consider economic factors ahead of the ideal treatment.

Asked what had made the biggest impression during their course at Indiana University, two students cited advances in preventive dentistry as a dominant factor in future patient care. Another said he now realized that non-clinical sciences have an important place in dentistry.

One student expressed appreciation for being accepted as a member of a senior clinical group and contributing to a diagnosis. Another praised the ability of a faculty member to make an immediate and accurate diagnosis of an oral problem. Several students cited the importance of teaching methods in dentistry and the communication of knowledge to students and the general public.

## Conclusion

The results show that Canadian graduate students interviewed in this survey clearly recognized the benefits of widening the scope of their dental knowledge, techniques and interest in the profession. This is very important for dental educators. It also benefits the private practitioner. The students' opinions may stimulate others to inquire about graduate education and seek out scholarships which are available from Canadian dental organizations.

Doctor Gourley, who is assistant professor of dental materials at the Faculty of Dentistry, Dalhousie University, Halifax, prepared this report while on leave of absence at Indiana University. He expresses appreciation to Professor Paul Barton, Indiana University, for assistance and advice in the preparation of the article, and to Dalhousie University and the Nova Scotia Department of Public Health for their financial assistance.

## Book Reviews

### The Classification and Treatment of Injuries to the Teeth of Children

*R. G. Ellis and K. W. Davey. Ed 5. Chicago, Year Book Medical Publishers, 1970. 231 p. Illus. $8.75*

The fifth edition represents an improvement over its predecessors. Significantly, the chapter on primary teeth, previously relegated to the end of the book, has now been brought forward to the beginning where it falls in chronological order.

The addition of Doctor Davey as a paedodontic co-author helps considerably. As a consequence, the stress on technique has been diminished while the accent on growth and its implications has been accentuated. The chapters are well arranged; the problems are placed in their proper perspective.

The first chapter gives a general perspective, with special emphasis on education. Chapter 2 presents a protocol for taking the case history and performing the examination. The description is short, systematic and to the point.

Chapter 3 involves a discussion of accidents that may occur to primary teeth. The authors tell us what to do and also what may happen to permanent successors replacing injured primary teeth.

Chapters 4 to 7 deal with the various types of crown fractures. In chapter 8 the reader learns what to do about teeth lost as a result of trauma. Chapter 9 deals with fractures of the root; chapter 10 concerns tooth displacement.

The management of simultaneous fractures in several teeth is the subject of chapter 11, while a schematic prescription for treatment in chapter 12 provides a ready reference for the busy practitioner. Education and prevention are stressed throughout the text.

Thanks to the increasing use of face masks and mouth guards, many accidents formerly associated with contact sports no longer occur. But primary teeth are still susceptible to physical injury from other causes. Every dentist should therefore have a copy of Ellis and Davey's book, preferably in the office where it can be used for quick reference.

The authors have dedicated this work to the unfortunate boys and girls for whom disfiguration becomes a personal problem. They challenge all dentists to help these children in their hour of need.

*J. G. Perreault*

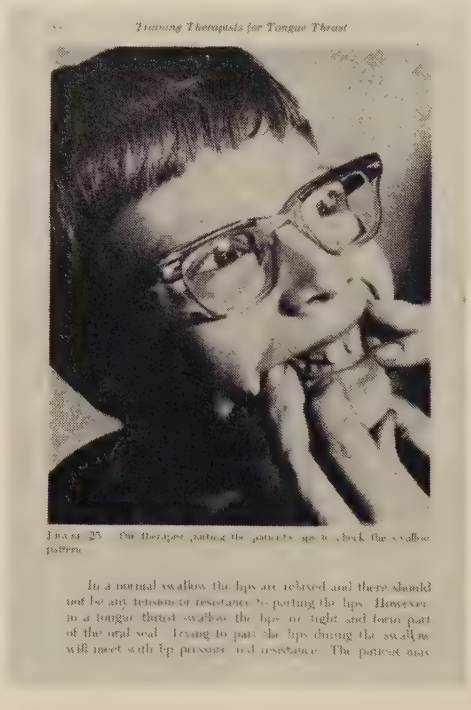
### Training Therapists for Tongue Thrust Correction

*Ann Beard Ehrlich. Springfield, Illinois, C. C. Thomas, 1970. (Available from The Ryerson Press, Toronto) 136 p. Illus. $7.50*

This publication, written as a training manual for speech therapists, dental assistants and hygienists, serves as a clear, concise handbook on tongue thrust therapy.

The book is based on the premise that tongue thrust therapy can be effective, a view which continues to be highly controversial. Mrs. Ehrlich acknowledges this controversy in the preface. However, many orthodontists, paedodontists and dentists recommend myofunctional therapy either preceding or in conjunction with orthodontic treatment, and it is for this purpose that the book is designed.

Mrs. Ehrlich, formerly a speech therapist at St. Francis Hospital, Trenton, NJ, makes the point early in the book that tongue thrust is a dental problem when there is no accompanying speech difficulty. She proposes that treatment be carried out either by a dental hygienist or dental assistant, provided they receive additional and specific training in tongue thrust therapy.




But when a patient has articulation problems in addition to the tongue thrust, she prefers that both be treated by the speech therapist. I would go further because, apart from ethical considerations, it is dangerous for anyone unaware of the psychological implications and learning process of speech to treat what appears to be a simple speech problem.

The book is divided into two parts. Part 1, entitled "Fundamentals," give a comprehensive introduction to the condition of tongue thrust. The facial musculature, the primary and permanent dentition, facial growth and development, normal and abnormal swallow patterns, orthodontic terminology as it relates to tongue thrust, speech and language development, and speech therapy terminology are all described. This information is presented in a well ordered, clear manner with many diagrams and photographs to supplement the text.

At the outset of Part 2, "Diagnosis and Treatment," Mrs. Ehrlich emphasizes why the therapist must work in close communication with the referring dentist or orthodontist. She details diagnostic techniques, factors which influence the decision to treat, parent conference, therapy equipment and finally a treatment plan.

The therapy plan is divided into three phases—awareness, correction and reinforcement. The author feels that a well motivated and cooperative patient can complete therapy within six weeks. She suggests that the first two sessions be spent on awareness, the second and part of the third on correction, and the remaining sessions on reinforcement. She stresses short but frequent practice sessions, parent involvement and the use of visual aids for the correction phase. Mealtime and bedtime practice, supplemented by reminder cards, are suggested for the final reinforcement stage.

Special problems, such as mouth breathing, lip-, finger- and thumbsucking are discussed in a separate chapter.

The final chapter, entitled "Exercises," consists of 26 exercises, a master list which the therapist can use as resource material when planning treatment.

The only area of therapy not covered in the book is a follow-up program to check on the patients. This is an essential part of the total therapy program.

*Training Therapists for Tongue Thrust Correction* fills a very real need and achieves its aim as a handbook on tongue thrust therapy. However, I cannot recommend it to dental assistants and hygienists unless used in conjunction with a specific training course. As the text for a course on tongue thrust therapy, it would be excellent.

*Elizabeth Gammon*

# Denture service

The renewed agitation by Ontario, Quebec and Nova Scotia dental mechanics who seek the right to deal with patients directly offers a rare insight into how the public may be led astray by confused thinking.

The mechanics claim that dentures can be made just as well or better by persons without all the required qualifications of a dentist. Give us that right, they argue, and we will help to alleviate the shortage of dentists. End the dentists' monopoly, they say, and we will provide dentures at less than half the prevailing cost.

On the surface, these are persuasive arguments and they strike a responsive chord in the public press. After all, if the mechanics can do the work of dentists, do it just as well and at lower cost, there is no valid reason why they should be prohibited from doing so. The public interest, not the well-being of the dental profession or any other group, should be the greatest concern. But the question of the mechanics' competence and public safety has received only the most cursory treatment thus far. And despite claims purporting to show the reduced cost of their services, the press has been strangely silent about the fact that the mechanics' charges jumped after they were licensed in Alberta and British Columbia.[1]

Certainly, there is no denying that individuals can be taught to master many of the technical skills of a dentist. But dental care is not just a matter of technology; it is a matter of health, just as gynaecology or urology are matters of health. The provision of dental care surely requires the responsible supervision of someone trained in the health of the mouth, namely the dentist. To put it simply, there is a lot more to dental service than putting in teeth for good looks.

The problem of balancing manpower and need in dentistry is not a unique situation. Most professions have, at one time or another, faced a similar problem. In most cases this has resulted in the delegation of standardized duties and practices to members of auxiliary occupations associated with these professions. Whenever auxiliaries have assumed such duties, questions of education, professional responsibility, supervision and control have been raised. These problems are not insurmountable unless they are ignored. In that event, first, illegal practice, and then enactment of legislation outside the control of the parent profession have developed.

Recognizing this hazard, the Wells Committee on Dental Auxiliaries[1] has proposed the creation of dental technologists from dental technicians who complete additional accredited training. Technologists would, on a dentist's prescription, be allowed to fabricate and fit dentures directly for the public — but only in dental offices or clinics, and only under the supervision of a dentist.

The Wells Committee is well aware of the hazard in fragmenting a health service. It believes that the delegation of duties under the specified conditions is consistent with the educational and legislative control necessary to ensure that health standards for the public are maintained and protected. Instead of countenancing the dismemberment of dental care, the committee acknowledges the dentist's ultimate responsibility for the welfare of his patient. From that standpoint alone, its proposal is infinitely superior to the strident demands of the dental mechanics and merits serious attention.

1 Canada. Report of the Ad Hoc Committee on Dental Auxiliaries. Ottawa, Information Canada, 1970.

# Un Bureau des Gouverneurs nouveau style

*La version anglaise de cet éditorial a paru dans le numéro de mai du Journal.*

La réunion du Bureau des Gouverneurs qui s'ouvrira le 27 septembre prochain se déroulera selon des règles nouvelles, et pour les participants et pour les spectateurs. Des règlements tout neufs, adoptés l'année dernière, guideront les 20 membres votants qui devront s'attaquer aux problèmes et prendre des décisions qui affecteront la structure de la profession et les services qu'elle fournit à la société.

Le bon fonctionnement de toute profession exige que celle-ci dispose d'une association professionnelle forte et d'un organisme directeur représentatif. Le Bureau, organisme directeur de l'ADC, prend des décisions qui peuvent être, et sont, chargées de très importantes conséquences pour le bien-être des membres de la profession. Nombre de conditions bénéfiques dans lesquelles le praticien exerce aujourd'hui ont été acquises par l'ADC au cours des années. Ces conditions sont le résultat de l'action exercée par l'Association, sous la direction du Bureau des Gouverneurs. D'autres changements sont en vue, qui se réaliseront d'ici quelques années et qui rendent encore plus lourde la responsabilité du Bureau cette année.

La multiplicité des sujets que le Bureau doit examiner nécessite un mécanisme qui permette aux membres individuels de l'Association d'exprimer leurs opinions, leurs suggestions et leurs craintes avant que le Bureau ne choisisse une politique. Ce sont les comités d'étude qui remplissent traditionnellement cette fonction. Les comités étaient auparavant composés de tous les membres du Bureau et de tous les membres individuels de l'Association qui se trouvaient présents à leurs séances. Chaque comité avait un mandat défini — recherche, services auxiliaires ou enseignement dentaire, par exemple — et tous les rapports ou résolutions étaient renvoyés au comité compétent où les membres individuels pouvaient exprimer leurs vues. Après examen approfondi, les recommandations, modifiées ou conservées dans leur forme première, étaient alors transmises au Bureau, devant lequel les membres individuels pouvaient encore une fois faire valoir leurs arguments avant que les diverses questions ne soient définitivement tranchées.

Cette procédure tout en étant profondément démocratique, devient éminement laborieuse — inconvénient d'autant plus marqué ces dernières années que le Bureau devait résoudre de nombreuses questions litigieuses. Les nouveaux règlements cherchent à y remédier en activant la conduite des affaires tout en conservant l'influence que tout membre peut exercer sur le système de délibération de l'Association.

Les rapports des agences de l'Association seront donc comme auparavant transmis aux comités d'étude mais les comités ne seront désormais composés que de cinq membres nommés par le président. Son chef sera un membre du Bureau, les quatre autres membres seront choisis parmi le Conseil Exécutif, le Bureau, le corps enseignant et les praticiens locaux.

A certaines heures, chaque comité tiendra des consultations sur les sujets qui lui sont dévolus. Ces séances seront ouvertes à tous les membres de l'Association dont le comité recevra les opinions sur les questions traitées. Le comité prendra ensuite ses décisions en évaluant, à huis clos, les opinions émises. Ainsi, chaque comité d'étude recommandera au Bureau des Gouverneurs une politique appropriée sur les questions qui lui auront été soumises.

Il est important de souligner que les comités d'étude n'empêcheront pas le Bureau de prendre des décisions sur les questions qui lui seront présentées; ils n'adopteront pas non plus automatiquement les opinions de ceux qui témoigneront lors des consultations. Leur tâche est de considérer tous les facteurs et tous les renseignements afin de préparer des recommandations qui serviront au mieux les intérêts du public et de la profession. Les nouvelles règles leur permettent de s'acquitter de leur fonction avec efficacité et rapidité.

Il doit être également clair que les membres du Bureau ne sont pas des délégués. On doit s'attendre à ce qu'ils voudront prendre connaissance des opinions de leurs électeurs et qu'ils les exposeront lors des débats. L'expérience et même les difficultés de certains praticiens ont déjà servi à soulever des problèmes que le Bureau a examiné et qui ont alors donné lieu à des décisions profitables à l'ensemble de la profession. Mais les membres du Bureau ne sont pas tenus, par leur appartenance locale, à voter d'une façon particulière sur aucune des questions soumises au Bureau. Leur droit et leur devoir, après avoir entendu les débats ou y avoir participé, est de voter selon le bon sens et leur conscience. Ainsi la volonté de la majorité peut prévaloir dans le respect scrupuleux des opinions de toutes les personnes concernées.

# Letters/Courrier

### Fees for insured patients

Your editorial "To Serve Humanity" in the March issue is a useful re-statement of the aims of our profession. However, I think you unfairly chastise dentists who raise their fees upon learning that the patient is covered by a plan. Many dentists, on occasion, quote a lower fee than the provincial fee guide out of consideration for the circumstances of the patient (big family, extensive dental problems, modest income). If he later discovers that the patient is enrolled in a plan (the premium for which is often paid by the employer) why should the practitioner not claim the negotiated plan-fee?

You might have pointed out that there is an obligation on the dentist or his staff to determine in advance of treatment whether the patient is enrolled in a prepaid plan.

Earlier in the editorial, you state that the relation of a dentist and his patient is not that of a seller and buyer, but that of a trust. When a third party is interposed between the dentist and his patient, the trust becomes clouded.

Most plans are computerized so that it is difficult to make adjustments if, in an individual case, a standard service is smaller or easier than usual. Conversely, what adjustment of the fee can be made if an item of service is more complex than anticipated? In the private dentist-patient trust adjustments of this nature are made daily. Dealing with a computer, however, clouds that trust considerably.

Instead of getting involved with third parties we should point out more clearly to our patients and to the public that dental health is a personal responsibility and that risks of dental ill-health are not the same as most unpredictable "medical" risks. People who recognize and act upon their responsibility for preventing dental ill-health should not be expected to subsidize (through plan premiums) the costs of the negligent. Neither should employers.

Many of our patients treat their mouth and teeth with respect, avoiding foods which cause disease, practising diligent hygiene, and having regular check-ups. Their dental treatment costs are minimal. Others abuse their mouth and teeth; they need to be motivated and taught better habits, not the bad habit of leaning on their neighbours to help pay their dental bills.

For these reasons we should withdraw from participation in prepaid plans. Instead, let's teach prevention more carefully, and let's publicize the many examples of families who maintain good dental health at low cost.

*D. C. T. Bullen, DMD, DDPH*
*1800 Beaufort St*
*Comox, BC*

### Three-rooted mandibular molars

Anyone involved in dental politics, and most Canadian dentists are, realizes that we will soon be subject to tremendous pressure to supply proper and sufficient dental service to our native people. Despite the shortage of dental manpower, the high cost and the distances involved, an answer to this problem must be found within a few years. Many of us in the private sector will be providing regular service in that much neglected area in place of the few who now do it on a spasmodic, semi-volunteer basis.

My own limited experience in working with Manitoba Indians left me with some definite impressions. I was amazed at the extent of the various lesions, the pigmentation of caries and secondary dentine, the absence of proximal caries in the posterior teeth and the four-rooted mandibular first molars.

I was therefore most interested in the article by W. Somogyi-Csizmazia and A. J. Simons (March Journal) about three-rooted first molars in Alberta Indian children, following as it did the Curzons' paper on the same condition in Keewatin Eskimos. Earlier reports by C. H. M. Williams and W. G. McIntosh described the incidence of dental disease and malocclusion in our native people, but these two papers were confined to racial characteristics as opposed to conditions that affect all Canadians. I found this most interesting. Surely, with the many good dentists employed exclusively in their care, and with more to come, we can expect to hear more along these lines.

Our American colleagues have done a lot in this regard. Their research has shed light on early Indian customs and beliefs about dental decay (tooth worms), toothbrushing, toothache remedies and extractions, to say nothing of unusual cusp patterns among various tribes.

The three-rooted molars reported by Bolk were second and third mandibular molars associated (in his opinion) with paradontal cusps and situated distobuccally. Have these been observed? What about five cusped second molars, three-rooted first bicuspids, congenitally missing teeth and the other aberrations we see or look for in any dentition? So many questions to be answered – or have they been answered – a quick review of the literature would indicate that they have not.

*M. J. Snidal, DDS*
*435 Academy Rd*
*Winnipeg 9, Man*

Doctor Snidal's observations about our article on "Three-Rooted Mandibular First Permanent Molars in Alberta Indian Children" touch many questions.

Our intention in an earlier draft was to stress genetic activity (regression) and the geographic distribution of a very important genetic trait (the third root on the mandibular first permanent molar). We wanted to invite comments which might aid in further development of the concept of a multicentre origin of a "pattern" which led to the emergence of *Homo sapiens*. In this connection, may I draw attention to the following authors: (1) Roger Sumner. Dental abnormalities and caries prevalence in British Columbia Indians. J Canad Dent Ass 31:379, 1965. (2) C. R. Castaldi and A. Bodnarchuk. Incidence of congenital anomalies in permanent teeth of a group of Canadian children aged 6-9. J Canad Dent Ass 32:154, 1966. (3) S. N. Bhaskar. Synopsis of oral pathology. St. Louis, Mosby, 1961.

Four-rooted mandibular first permanent molars were a regular feature hundreds of thousands of years ago. They disappeared as the position of the body gradually changed from a horizontal to a vertical posture. This transformation was accompanied by alteration in the source and type of food consumed and a corresponding change in chewing, necessitating structural changes in the architecture of the jaw bone and tooth. Further alterations in the periodontal membrane, the proprioceptive reflex and muscles followed.

Three-rooted first bicuspids, four- and three-rooted mandibular first molars and cusp variation exemplify the genetic expressivity of once dominant traits which concern survival. Their occasional emergence, like a sudden "remembrance" of genetic recombination, reinstates earlier anatomical features. Mendelian law demonstrates that "abnormal characteristics" result from random recombination of the recessive traits of the earlier individual. But what is normal in this ever changing process?

The enormous progress in the technical sciences creates many dilemmas. In this situation we are still using two and three dimensional philosophy. We have yet to develop four and five dimensional perception in order to comprehend the past and direct the future. Yes, Doctor Snidal, there are "so many questions to be answered." I do sincerely thank you for your interest.

*W. Somogyi-Csizmazia, MD, DDS*
*1105 Premier Way SW*
*Calgary 6, Alta*

# EXECUTIVE DIRECTOR'S PAGE

### Dentifrice promotion

Last month I informed you that I had written the Food and Drug Directorate in Ottawa about the unfair sales advantage that cosmetic dentifrices had over therapeutic ones.

I went over the regulations governing the door-to-door sales promotion and tried by my letter to the government to assume a responsible role in emphasizing prevention. I had at least asked that therapeutic dentifrices not be put at a disadvantage in Canada.

Doctor R. A. Chapman, Assistant Deputy Minister, Food and Drugs, replied to my letter. He said in part:

"The entire question of drug samples was considered by directorate personnel approximately two years ago with the view that the distribution of samples might be extended beyond the limits now prescribed by regulations.

"We concluded, however, that the intent of Section 14 of the Food and Drugs Act as contemplated by Parliament is specific in respect to control of drug samples and that we are not in a position to permit greater flexibility than the conditions now prescribed.

"The Canadian Drug Advisory Committee has supported this viewpoint," adds the letter.

From the foregoing, it is obvious that the profession will receive no help from the government. It is up to the profession to show the public that there are proven health differences between therapeutic and cosmetic dentifrices.

### Medical Care Act

CDA has now achieved a consensus of corporate members regarding the elimination of the "in-hospital" requirement of the Medical Care Act.

All 10 corporate members have written me that they desire the elimination of this clause. Removal would make certain dental surgical services compensable when performed by dentists in their own offices.

In January, I had only three endorsations. They formed insufficient support for me to take to the Minister of National Health and Welfare to ask for removal of the discriminatory and restrictive regulation.

The Board of Governors had asked for a consensus of members, because CDA had been informed that without one, the government would not seriously consider its request.

Two provinces added provisos to their endorsements. One gave approval, providing that extractions of erupted teeth were not included in the covered services. The other member proposed that only oral surgeons — and not general practitioners — should have their services compensable when performed out of hospital.

This information has been relayed to Health Minister John Munro, along with a request for an appointment to discuss the matter.

There is no denying the fact that this is a complicated issue. It is influenced by local socio-economic, educational and other variables.

Obviously the dental profession is not of one mind as to the best solution and yet, there has to be a solution.

I hope that the special committee established recently by the Dental Services Council to review dentistry's role under medicare will provide the necessary enlightened leadership.

### Unemployment insurance

Several inquiries that have come to headquarters lately show that there is considerable confusion over the correct interpretation of the Unemployment Insurance Act, particularly with regard to the employment of hygienists. The confusion is multiplied when the hygienist works for more than one dentist. As penalties for incorrect filing are rather severe, the dentist should make sure that his unemployment records are in order.

Through the efforts of the CDA Council on Legislation under the chairmanship of Doctor Mike Derrick of Ottawa, we have secured the following summary of the basic provisions in the unemployment insurance legislation from Mr. R. L. Beatty, Director General of Insurance Services. You could find it useful as a guide to unemployment insurance payments for hygienists:

1. All employment in Canada under a contract of service is insurable unless specifically excepted by the Act or Regulations. A contract of service is a written or oral agreement whereby one person, the employee agrees to work for another person, the employer, under an employer and employee relationship. The worker is to do the work personally under the direction and control of the employer in return for some specific remuneration.

2. It is the responsibility of the employer to collect and remit unemployment insurance payments and to keep appropriate records.

3. Conditions under which a hygienist is not insurable:

(a) If the hygienist is not working in excess of 24 hours per week and her livelihood is not ordinarily derived from insurable employment, she may claim exception by lodging a Declaration of Inconsiderable Employment, form 587A with the employer at time of hiring. If the employee does not wish to complete the declaration, she must be insured even though working less than 24 hours a week.

(b) A hygienist whose yearly earnings exceed $7,800 a year, provided her rate of pay is other than by the hour, day, piece or other rate per unit of work. The hygienist would have to be paid on a weekly, monthly or commission basis. A hygienist who is not insurable because of earnings in excess of $7,800 a year as outlined above may elect to remain insured provided certain conditions are fulfilled. Information on this point may be obtained from any office of the Commission.

4. Concerning a hygienist employed by more than one dentist and earning in excess of $7,800 per year, the legislation applies as follows:

(a) If the hygienist is paid other than by the hour, day or rate per unit of work performed, by each of her employing dentists, her employment is not insurable.

(b) If the hygienist is paid by the hour, day or rate per unit of work performed, her employment is insurable by each of her employers.

5. It is emphasized that if any doubt exists regarding the insurability of a hygienist, a ruling in writing should be obtained from the nearest office of the Commission.

*Expansion of the range of permissible duties performed by supervised dental hygienists, assistants and technicians is the central theme of a report by the federal Ad Hoc Committee appointed in mid-1968 to study all aspects of dental auxiliaries (p 130, April Journal). Its report recommended this step in order to increase dental services for the public. For an assessment of its implications, "Dialogue" invited comment from Norman Levine, a Toronto paedodontist.*

## Expanded duties of auxiliaries

The Ad Hoc Committee "appointed to study all aspects of dental auxiliaries," submitted its report on September 25, 1970. Its particular concern was the dental auxiliaries' contribution to better dental health of all Canadians. The CDA Council on Auxiliary Services gave the report conditional approval at its March 8, 1971 meeting, but there has been very little formal publicity of this study or its recommendations to the dental profession at large.

One cannot argue that positive change in a profession is mandatory if it is to retain its vitality, but such change should not create chaos along the way. In reading this report, I posed to myself the following questions:

1. Did this committee truly represent the dental profession on a national basis? From a composition standpoint my answer would be negative since some CDA corporate members were not represented and almost all the professional members of the committee were graduates of one particular era. Certainly any plan which may be enacted will have its most profound effect on recent and future graduates rather than those of 20 or 30 years ago. Therefore, a more balanced committee would have been in order.

2. If the key to improving the dental health of Canadians is placed in the hands of auxiliaries, what will happen to the professional dental education programs? Surely one cannot dismiss the need for more dentists and dental schools as "utopian." If these programs are intended to develop and expand, professional and auxiliary education must proceed concomitantly in order to maintain an adequate pool of professional personnel such as practitioners, teachers and researchers.

3. Why the suggestion for incentives to stimulate dentists to employ additional auxiliaries in order to increase the output of service? I submit that incentives are unnecessary in most urban areas. They are only needed in localities where dental service is inadequate. The problem is one of distribution, which can only be solved in part by incentive programs. In addition, much more emphasis should be placed on recruitment of potential professional students, and their placement along with auxiliaries.

4. Who will establish the course content for auxiliary programs? Who will teach them? Will their training and licensure fall under professional or government purview? Even more important, who will be responsible for the quality control of the finished product? It is facetious to assume that all dentists have equal standards. Therefore, control must not only be vested in the dentist who employs such an auxiliary but also in some other governing body with properly appointed representation from the dental profession.

5. Should not the profession plan the programs and act as adviser, leaving their implementation to government, rather than allowing government to plan the entire program?

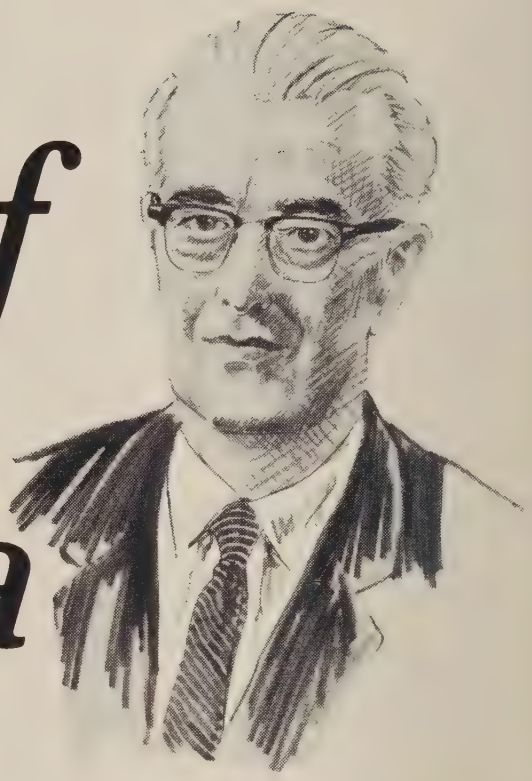
I have not alluded to the many aspects of the report which deal with changes in the duties of the various auxiliaries proposed, for I consider these of secondary importance. Studies and practice have shown that people can be trained to perform technical services without requiring a high degree of academic knowledge. Therefore, the question is one of morality: whether the need for increased dental care warrants such radical changes as suggested in the report at the risk of lowering the current standard of service. If so, we must be prepared to answer to the public and the profession at all times.

Further perusal of the report will undoubtedly produce more queries. I quote in this connection from a pertinent editorial in the March Journal: "The Canadian Dental Association's Code of Ethics, newly revised last year, shows very clearly that the relation of a dentist and his patient is not that of a seller and buyer. It is a trust, confided to a dentist by his patient, who entrusts himself to the knowledge, good judgement, sincerity and honesty of the dentist. This is what makes dental practice a professional service worthy of a fee instead of wages for work or a price for something made." I therefore ask how will all of the proposed changes affect our Code of Ethics.

I appreciate the opportunity to discuss this very important topic. My remarks in no way reflect the attitudes of any institutions or organizations with which I am associated.

*Norman Levine, DDS, MScD, FRCD(C)*
*200 St. Clair Ave W*
*Toronto 7, Ont*

# A History of Dentistry in Canada



D. W. GULLETT

Old dentists are something like old fishermen. Their tales grow taller with their years, says one of Canada's best known dentists – who'll be 73 in the fall.

If the elderly dentists tend to exaggerate, as Doctor Don W. Gullett says, they certainly don't rest on their laurels. And Doctor Gullett's major work for the CDA, "A History of Dentistry in Canada," is a prime example.

The former CDA secretary turned author spent the last five years traipsing across the country by car with his wife Alice to compile a massive amount of material for the monumental work now being published by the University of Toronto Press.

Doctor Gullett's cynical remark about elderly dentists is a result of several experiences in his many interviews across Canada in trying to trace the country's history of the profession.

In one case, a group of them in one town told their stories about how it was way back when. Each story was different and all of them appeared to play

starring roles in the history of their community and profession.

But the many archives and museums that the Gulletts visited told different stories. Doctor Gullett soon came to realize that, if he was to write a factual history, it would have to come from the archives, museums, and their curators.

In one case in a remote town in the Canadian north, one dentist took a different view of his role in the history of the profession. He was leery of telling Doctor Gullett too much about himself. This modesty was in sharp contrast to the willing exaggerations of his peers in all parts of the country. After consulting the local archives, the reason was found by Doctor Gullett. The dentist did not graduate from dental school.

The CDA's investigator soon found the most efficient way of getting information was to focus on the men who organized the profession in each province. Many of them were not angelic – but their drive and pioneering spirit offset much of what we today would find immoral.

Earlier, of course, dentists were apprenticed, rather than school taught. No one could make a living at it in the 19th century. It was the moonlighting end of the regular business, which was mainly a blacksmith shop.

There were others whose main line was somewhat more delicate, such as daguerreotyping. This was an early photographic process by which pictures were produced on plates of chemically treated glass or metal.

But there was nothing delicate about some of the methods used by the early Canadian dentists. Literally a jawbreaker was the turnkey – a device used for extractions which often took the surrounding bone out along with the bad tooth, says Doctor Gullett.

This method may have been offset somewhat by the fact that the dentists' offices in "civilized" areas were over the source of the most common anaesthesia – the town bar.

But there were no established dental offices west of the present Ontario border in the 1850s, which made tracking more difficult for the Gulletts.

Often, they were led on wild goose chases. In some cases, however, they knew they were on the right track, but the trek would have taken them into the US and the expense would have been too great for the CDA budget to stand.

For example, one of the most interesting characters that Doctor Gullett came across was a dentist who was a pioneer aviator and aircraft builder. He had later settled in the remote Peace River area of Alberta and died in the 1940s.

The man had practised in both New York and San Francisco and had built his own airplane before the Wright brothers, only he didn't have the hard cash of J. Pierpont Morgan backing him, as they had, says Doctor Gullett.

But he came up with the first airplane factory in the US, which later collapsed and the Canadian north received the innovative dentist.

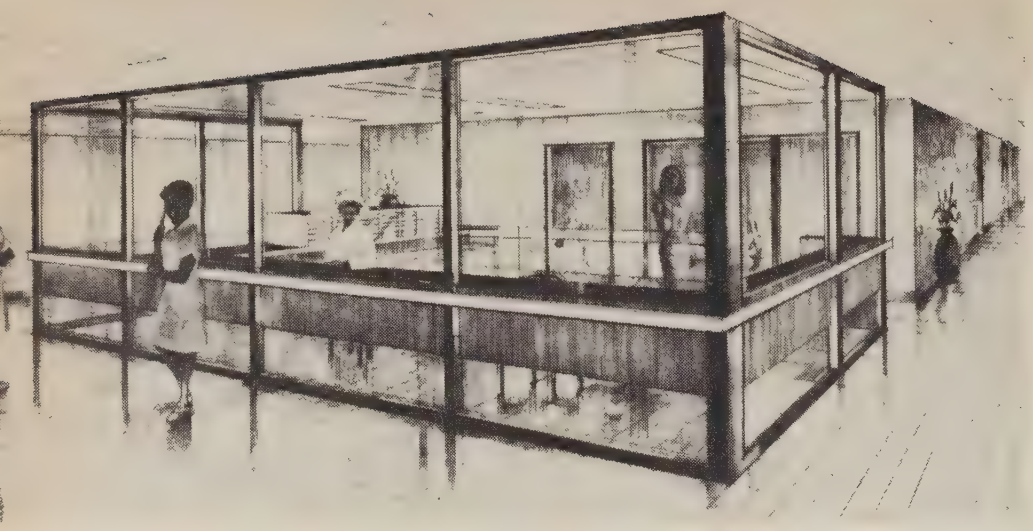
Much to Doctor Gullett's chagrin, his book's number of pages were limited by the publisher, so only a scratching of the surface was achieved from the volumes of interesting information gathered over the years. More than 50 pictures have been published, many for the first time.

These manuscripts, nearly all typed by Mrs. Gullett, have displaced many of the family's clothes in the closets at home.

After speaking to the many museum curators across Canada, Doctor Gullett found that there are numerous missing links when one tries to trace the history of dentistry further back to the native tribes of Canada.

He would like to see some young dentists get some training in anthropology. Often, he has come across skulls which show a method of extraction – yet don't give a clue to the type of method. The book begins with the earliest records available, describing the folk medicine of the Indians and Eskimos before the Europeans arrived.

Doctor Gullett is all for establishing a dental archives in Canada and is exploring the possibility of financing from several foundations. The steps he is taking to establish such an institution are added to many in a long and distinguished career in Canadian dentistry.



# Hospital dentistry in British Columbia

**A. E. Swanson, DDS, MS, FRCD(C)**
**Vancouver**

It is all very well for the Canadian Dental Association and its provincial corporate members to seek recognition for dentistry in the hospital community. But this should not be done blindly, year after year, without posing some basic questions such as: What hospitals actually require a dental service? Where is the service needed? Will dentists and hospital administrations move toward this goal cooperatively? What is the present status of dentists and dentistry in our hospitals? And what can dentists and hospital administrations do to further this common goal?

To find some of the answers, the former British Columbia Dental Association polled its own members and 100 hospital administrators. Questionnaires were completed by 357 dentists who represented 56 per cent of the association membership at the time of the survey. The answers from both the dentists and the hospitals are illuminating.

## Present facilities inadequate

Half the dentists who did not have a hospital staff appointment showed no interest in seeking such an appointment. Nevertheless, a great majority were in favour of developing more hospital dental service programs. They felt that such programs could enhance community health and promote the status of dentistry.

Most dentists with hospital appointments do not attend on a regular basis. Two visits a month were the commonest pattern, with once-a-month visits a close second.

Thirty per cent of the respondents said that they admit their private patients to their local hospital. This figure may be inexact because British Columbia has a conjoint admission policy whereby the physician is responsible for overall medical care and the dentist looks after the dental problems.

Oral surgery privileges outweighed restorative dentistry privileges by three to one and general dentistry privileges by five to one. This may be related to a widely held view that the respondents' local hospitals lack adequate equipment and facilities for restorative dentistry.

Another frequent protest centered on the low priority accorded the dentist in the allocation of operating room time. Many respondents said their scheduled operations were often displaced at the last minute by a medical operation, disrupting private office schedules.

The two complaints about facilities and operating room allocation represent the opinions of about 70 dentists who felt sufficiently exercised to comment in writing. They appear to be a major reason for disenchantment with hospital dentistry. On the other hand, the main complaint from many hospitals was the fact that when they did provide adequate facilities for hospital dentistry there was a notable lack of interest from the local dentists. As a result the hospital administrators felt that the provision of dental services was not worthwhile.

## Continuing education

Though only one dentist in five had ever served on a hospital committee, many felt that their hospital affiliation had broadened the scope of their practice and enlarged their professional interests. Nearly one-third had had some formal training or experience in hospital dentistry – mainly in the form of short courses or dental internships. But half the dentists considered their undergraduate education inadequate preparation for hospital activities. Of interest to educators is the fact that two-thirds of the replies revealed a definite desire for continuing education courses in this field.

Owing to the nature of some of the questions asked, the figures obtained are not always reliable. Nevertheless, certain points seem to indicate the general conditions experienced by the dentist in the hospitals of British Columbia.

## Cooperation between professions

Some dentists complained of local prejudices, intra- and interprofessional jealousies, intolerance and impatience, whereas others commented on the smooth and harmonious relationships they enjoyed with their medical and hospital colleagues. Some physicians may feel that a dentist's work is less important than their own, and that the dentist is inclined to abdicate his responsibility to the patient once the operation is completed. Our desire is to remove the discord and dissatisfaction wherever possible and thus create an atmosphere where close cooperation between the professions may be achieved.

## Professional status

Many of the respondents, obviously on hospital staff, did not indicate their rank, possibly because the dentist was uncertain of his staff category. There is also confusion over the definition of specialty as opposed to general practice. Endodontics, public health, general anaesthesia, education and the military are not recognized as specialties by the College of Dental Surgeons of BC.

It was interesting to learn that one dentist is secretary of the medical staff of a hospital. Six dentists are on the planning committee and two are on the board of trustees of their hospital. One dentist is on the medical advisory board of his hospital.

In British Columbia progress is being made slowly but surely in the realm of hospital dentistry. Before November 1967 dentists working in hospitals had inadequate legal protection. Changes in the Hospital Act and its regulations removed this obstacle. Hospital dental departments are growing in importance in a few institutions and it was rewarding and refreshing to hear from the administrators of two such hospitals at our third annual meeting on hospital dentistry two years ago. The Hospital Services Committee of the BC college endeavours to promote a dialogue between dentists who are interested and involved in hospital dentistry and hospital administrators by sponsoring these meetings which have so far been most productive.

## Minimum standards required

The duties of a provincial hospital services committee should be extended to cover liaison between the profession, the government and the provincial hospitals' association. Working in concert with its CDA counterpart, the provincial committee should also have the authority to recommend suitable equipment for hospital dental operating rooms and to establish guidelines for standards of hospital dental services and dental staff by-laws. In addition, the development of postgraduate courses in hospital dentistry is essential.

The need for a hospital dental service is apparent from the brief submitted by the Canadian Dental Association to the Aims and Objectives Committee of the Canadian Hospital Association, March 1967. The brief states in part, ". . . Since dental care is not an isolated service, but an essential part of total health care, the services of the dental profession must be integrated with those of the other health professions in order to provide a complete health service for the community." In addition, the CDA brief suggests, ". . . The modern hospital offers both a challenge and an opportunity for inter-professional cooperation."

The same principles were recommended at the CDA Council on Education's teaching conference in January 1969. In spite of these recommendations, neither of the two largest hospitals in Vancouver, both used as teaching hospitals by the university, has a dental department (although since this report was compiled the Vancouver General Hospital has formed a subdepartment of dentistry).

The Canadian Council on Hospital Accreditation has suggested standards for hospital dental service covering subjects such as administration, dental staff responsibilities, and the relationship between medical and dental staff. If these standards were used as the minimum requirements for a hospital wishing to retain its accreditation, the scope and quality of hospital dental service would be tremendously improved.

## Summary

This report gives the results of a questionnaire sent to all members of the BC College of Dental Surgeons and also to one hundred of the province's hospitals. The implications of the answers to the questionnaire are discussed and several suggestions are made in an attempt to improve the present situation.

# Dentistry in the News

## National Convention

### Nova Scotians to discuss denture problems

Dentists who encounter difficulties with denture patients may find answers to their problems at the CDA national convention in Ottawa. Three Dalhousie University dentists will identify and offer help for some common problems in complete denture prosthodontics. The trio consists of D. V. Chaytor and A. H. Ervin, both associate professors of prosthodontics, and J. M. Gourley, assistant professor of dental materials. Their presentation is set for Friday afternoon, October 1.

Doctor Chaytor had private and public health practice experience in his native Newfoundland before coming to Halifax in 1968. Doctor Gourley earned BSc and PhD degrees in chemistry from Nottingham University, England, before coming to Canada. Doctor Ervin is a 1944 graduate of Dalhousie University. He earned an MSc in prosthodontics at Ohio State University in 1969.

D. V. Chaytor

A. H. Ervin

J. M. Gourley

### Two day meeting for prosthodontic academy

The Canadian Academy of Prosthodontics will hold a two day meeting Saturday and Sunday, September 25-26, at Ottawa's Skyline Hotel, preceding the CDA national convention.

The clinical program features presentations by 11 outstanding American prosthodontists on "Changing Concepts in Vertical Dimension and Centric Relation Records" (S. I. Silverman, New York City); "Oral Diagnosis" (A. L. Martone, Norfolk, Virginia); "Transitional Complete Dentures" (R. W. Elliot, Jr., Bethesda, Maryland); "Biologic Variables of Occlusion in the Complete Denture Patient" (Herbert Sherman, New York City); "Bridge Design for Plaque Control" (Harold Schwartz, New York City); "New Concepts in Crown and Bridge Prosthodontics" (R. G. Granger, Bethesda, Maryland); "A Rationale in Crown and Bridge Preparation" (Harold Litvak, New York City); "Internal Clip Attachment" (J. C. Lee, New York City); and "Transitional Means to Achieve Better Treatment in Crown and Bridge Prosthodontics" (P. J. Krevitt, New York City).

In addition, Maurice Belsky of New Brunswick, New Jersey, and N. A. Giuditta, Westfield, New Jersey, will conduct a panel discussion on crown preparations entitled "Shoulder vs Chamfer."

The scientific chairman is Jacques Fiset of Montreal. Requests for further information should be sent to W. G. Woods, Suite 1125, 123 Edward St, Toronto 101, Ont.

### Partial dentures and periodontics are topics for military dentists

Two instructors from the Canadian Forces Base Borden, Ont, will speak about periodontal disease and "trouble-shooting in removable partial dentures" at the national convention in Ottawa.

Lt.-Col. Paul S. Sills will discuss the diagnosis of post-insertion complaints from removable partial dentures. His comments will also cover the causes and elimination of tissue irritation, pain involving remaining natural teeth, denture movement, difficulties during mastication and phonetic problems. He will speak on Thursday morning, September 30.

Maj. Leland A. Reynolds will review basic periodontal concepts and surgical procedures of interest to the general practitioner. His presentation is set for Saturday morning, October 2.

Lt.-Col. Sills is chief instructor in charge of prosthodontics at the Canadian Forces Dental Services School, Borden. Maj. Reynolds heads the school's periodontal department.

### Class reunions

University of Toronto's graduating class of 1941 will hold a reunion at the CDA national convention in Ottawa. A hospitality room has been reserved at the Chateau Laurier on Wednesday, September 29. Further information from Benjamin Gross, 3077 Bathurst St, Toronto 19, or Col. G. R. Covey, Canadian Forces Headquarters, No 8 Temporary Bldg, Ottawa 4.

## The Association

### Mr. Lévesque, new CDSPI insurance consultant for Quebec dentists

Mr. W. E. Jackson, administrator of Canadian Dental Service Plans Inc, has announced the appointment of André Lévesque, Quebec City, as an insurance consultant to members of the profession in the province of Quebec.

André Lévesque

A lawyer as well as a chartered insurance broker, Mr. Lévesque is also the owner of the Quebec City firm of André Lévesque and Associates. A former president of the Insurance Brokers Association of Quebec, he is well known in Canadian insurance circles, having lectured extensively in his native province as well as in Ontario, Alberta and British Columbia.

Mr. Lévesque's services are now available from his office at 100 Place d'Youville, Room 110, Quebec 4, Quebec.

Maj. L. A. Reynolds

Lt.-Col. P. S. Sills

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on April 30, 1971:

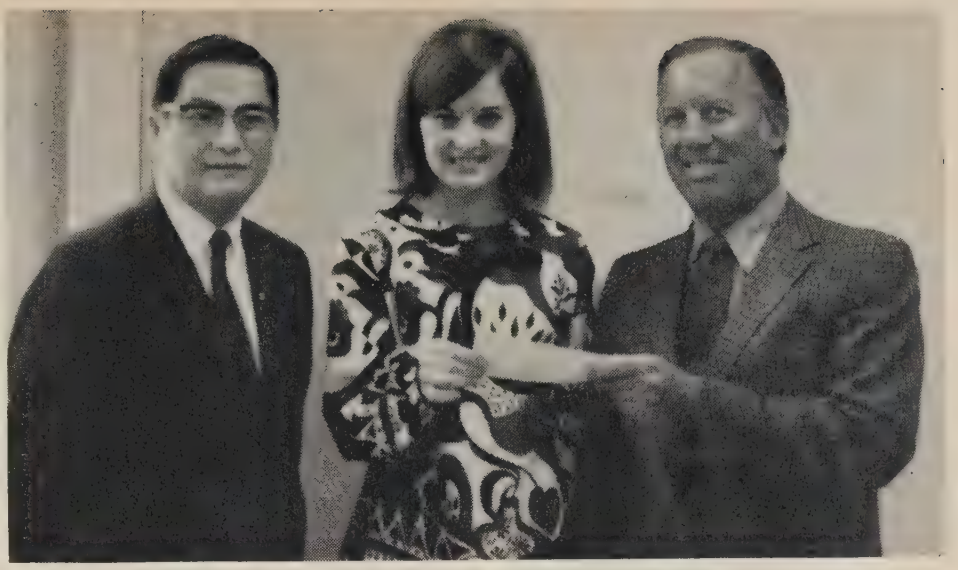
*Fixed Income Fund* $11.765;

*Common Stock Fund* $24.078.

Total assets (market value) of the plan were $10,801,661.16.

The following portfolio purchases occurred during the preceding month: 5,000 shares Commonwealth Holiday Inns and 4,000 shares Maclean-Hunter Ltd.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.



Dean S. Wah Leung (left) looks on as Evelyn Johnston, Vancouver, receives the first Canadian Fund for Dental Education scholarship in dental hygiene offered at the University of British Columbia from Sheppard Margolese, CFDE trustee.

## International Items

### Dental congress for handicapped in Atlantic City Oct 7-8

Canadian dentists have been invited to the first International Dental Congress for the Handicapped in Atlantic City, October 7-8. The meeting, to be held at the Dennis Hotel, precedes the annual session of the American Dental Association.

For further information, please write to Manual A. Album, Medical Arts Bldg, Hillside Ave at York Rd, Jenkintown, Pa 19046, USA.

## Dental Education

### Dental hygiene students win CFDE scholarships

The names of the winners of the first CFDE scholarships to first year dental hygiene students in Canadian dental schools were recently announced. They are: Evelyn Johnston, Vancouver, University of British Columbia; Barbara A. Coyle, Regina, Sask, and Shauna M. Sullivan, Edmonton, co-winners at the University of Alberta; Susan I. Haglund, Winnipeg, University of Manitoba; and Mary Blake, Charlo, NB, Dalhousie University.

The awards were first established in 1970 by the Canadian Fund for Dental Education in cooperation with the Canadian Dental Hygienists Association. A scholarship in each Canadian university with a course for hygienists will be awarded annually to a first year student combining academic excellence with active participation in organized undergraduate activities. Winners are selected by the awards committee in each school.

The money for these awards is contributed by practising hygienists, the Canadian Dental Hygienists Association, local hygienists societies, the Procter & Gamble Company and the CFDE.

### Saskatchewan college announces new appointments

Dean K. J. Paynter has announced four new full-time and three part-time staff appointments at the College of Dentistry, University of Saskatchewan, Saskatoon.

A. T. Ball, a former Saskatoon practitioner, will become assistant professor of periodontics in the early fall.

M. W. Dickson, also of Saskatoon, has been named assistant professor of paedodontics.

Appointed professor of oral diagnosis and radiology and lecturer in bacteriology is Bernard Lilienthal who will take up his duties in July. Doctor Lilienthal has had a long teaching and research career in Australia and for the past five years has been in private practice in London, England.

D. W. Tyler of Bristol, England, is the new assistant professor of oral biology and lecturer in physiology.

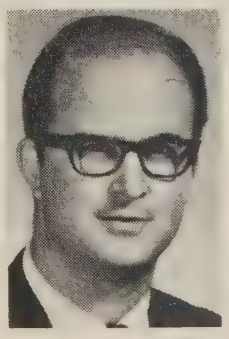
The first three part-time appointments on the dental staff at the Saskatchewan college are all Saskatoon dentists. They are R. B. Gilliland, G. H. Peacock and E. W. Zak who have accepted positions as clinical instructors in restorative dentistry and participate in the teaching of preclinical operative dentistry to the fourth year dental class.

### New appointments at Toronto

Two appointments were recently announced at the University of Toronto's Faculty of Dentistry. G. A. Zarb became chairman of the Department of Prosthodontics on March 1. A. R. Ten Cate's appointment as chairman of the Division of Biological Sciences was effective April 1.

A 1960 graduate of the Royal University of Malta, Doctor Zarb also earned degrees from the University of Michigan and Ohio State University. He is a fellow of the Royal College of Dentists of Canada. Succeeding R. L. Twible, who retired last year, Doctor Zarb has recently served as associate professor of prosthodontics at Toronto as well as being head of the Department of Restorative Dentistry at the Toronto General Hospital and a consultant at the Hospital for Sick Children.

Doctor Ten Cate received his education in England where he held several teaching appointments. Since 1968 he has been on the staff of the University of Toronto as a professor at the Faculty of Dentistry and assistant professor at the Faculty of Medicine.



G. A. Zarb

A. R. Ten Cate

Oxbow (Sask) Dental Manpower Project. Top left picture shows Lesley Rae, a New Cross dental auxiliary, extracting a deciduous cuspid on orthodontic prescription issued by W. G. Davey, supervising dentist. Right hand photo shows Pat Speedy, another New Cross auxiliary, preparing teeth for restoration.

Winnipeg dentist W. A. Belden describes operations of the Manitoba Denture Clinic to Leonard Gaik of Hamilton, Ont.

## Dental Organizations

### Ontarians tour west

A three man delegation, led by Ontario Dental Association Past President Ivan Hrabowsky, visited Winnipeg, Regina and Saskatoon in April to inspect the Manitoba Denture Clinic and dental auxiliary projects to Saskatchewan and to confer with dental officials in the two Prairie provinces. Accompanying Doctor Hrabowsky were R. K. Federchuk, Oakville, and Leonard Gaik, Hamilton, both members of the ODA Auxiliary Services Committee.

In Winnipeg, the group held discussions with W. A. Belden who described the cost and mode of operation of the Manitoba Denture Clinic. The visitors also met Mrs. Margery Forgay, director of the School of Dental Hygiene of the University of Manitoba, who told them that very few of her students are employed in a prosthodontic capacity although they receive 380 hours of prosthodontic training.

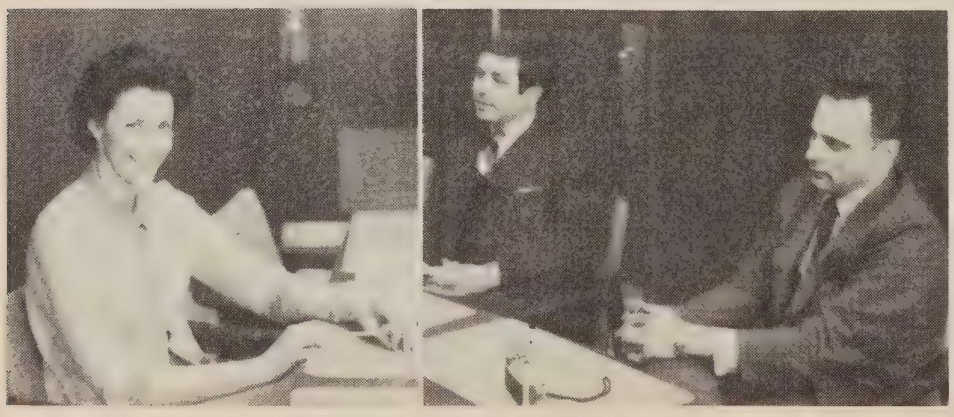
Further discussions with leaders of the profession in Winnipeg and Regina centered on profession-sponsored denture clinics and methods of countering the activities of dental mechanics.

Subsequently, the Ontario delegation visited Oxbow and Arcola in southeastern Saskatchewan, site of a pilot dental auxiliary study. This project is testing the feasibility of using (English) New Cross dental auxiliaries, under the direct supervision of the dentist, for providing certain intra-oral services to preschool and schoolchildren. The auxiliaries prepare and restore simple cavities in primary and permanent teeth. Using infiltration anaesthesia, they also extract primary teeth.

The visitors spent some time in a trailer clinic, observing and talking with the project dentist, W. G. Davey, his two New Cross dental auxiliaries and the two certified dental assistants who perform rubber cup prophylaxis and apply fluoride solutions. They also examined several children and conferred with local school officials.

In Saskatoon, they visited the School of Applied Arts and Technology where dental assistants are being trained to perform rubber cup prophylaxis, apply topical fluoride solutions and expose bitewing and periapical radiographs.

Corinne Falconer, RDH, who heads the dental assistant training program at Saskatoon's School of Applied Arts and Technology, chats with Ivan Hrabowsky, past president of the Ontario Dental Association.



Margery Forgay, director of the School of Dental Hygiene at the University of Manitoba, Winnipeg, describes the school's curriculum to R. K. Federchuk, Oakville, and Leonard Gaik, Hamilton, Ont.

### Atlantic paedodontists elect Doctor Pronych

The new president of the Atlantic Chapter of the Canadian Society of Dentistry for Children is P. M. Pronych of Halifax. A native of Codette, Sask, Doctor Pronych earned a DDS degree at Dalhousie University, Halifax. He also holds a certificate in paedodontics and an MS degree from the Ohio State University. As well as operating a private practice in paedodontics, Doctor Pronych is currently assistant professor of community and paediatric dentistry at Dalhousie University and on the associate staff of the Izaak Walton Killam Hospital for Children.

P. M. Pronych

M. A. Kamienski

### Doctor Kamienski elected president of Toronto academy

Recent elections by the Toronto Academy of Dentistry resulted in the appointment of M. A. Kamienski as president for the 1971-72 term. He succeeds W. J. McColeman. A 1951 graduate of the University of Toronto, Doctor Kamienski served as a governor of the Ontario Dental Association from 1967 to 1969.

Other officers elected are D. M. McKee, president-elect; W. S. MacKenzie, treasurer; and Bernard Crystal, secretary.

## Economics

### Montreal club would curb federal subsidy for oral surgery

The Montreal Dental Club has urged National Health Minister John Munro to discontinue federal subsidies for the extraction of erupted teeth.

At present, federal contributions under the Canada Medical Care Act authorize payments to dentists for medically required in-hospital oral surgery. At its 1970 annual meeting, the CDA Board of Governors directed that the federal government be requested to remove the "in-hospital" restriction. All 10 corporate members had expressed outright or conditional support for this action.

In a brief submitted to Mr. Munro April 29, the Montreal club noted that removal of the in-hospital limitation would automatically delete the "medically required" stipulation, thereby increasing the volume of subsidized oral surgery in hospitals and in private practice.

Removal of the in-hospital limitation would create a unique priority for oral surgery in private offices which could have devastating effects on present and future attempts to improve the total dental health of the Canadian public. It would have a negative effect on dental health education and would also negate the efforts of dentists who try to convince their patients about the benefits of retaining their natural teeth, said the brief.

### Renewed pressure from Ontario mechanics

Dental mechanics have appealed to Ontario Health Minister A. B. R. Lawrence to legalize direct dealings with the public.

In a brief presented by the Denturist Society of Ontario, which claims to represent more than 90 establishments, the group asked for the right to repair, design and fabricate complete and partial dentures and take impressions and bite registrations.

### Stay-in-Manitoba bursaries for dental students

A scheme to provide financial incentives for dental graduates to practise in Manitoba has been announced by Premier Ed Schreyer.

The plan involves special opportunity bursaries – interest-bearing loans repayable to the province through "service in the province" – that will be made available to University of Manitoba dental students in the next academic year.

Financial need won't be a factor in the granting of the bursaries which are designed to encourage graduates to practise in Manitoba and particularly in rural areas.

Dental students will be eligible for bursaries of $2,400 for the first year, $2,900 for the second year, $2,300 for the third year, and $1,900 for the fourth year. An additional sum of $1,000 a year may be awarded to married students.

Upon graduation, recipients will repay their loans at the rate of $250 for every month of practice in a government-designated location. Any portion of indebtedness not discharged by service in the province will be repayable in cash, with interest.

### Michigan association proposes second licensed auxiliary

Trustees of the Michigan Dental Association have proposed amendments to the state's dental act which would provide for expanding the functions of dental hygienists and for the establishment of a licensed dental assistant.

Under the proposal, the licensed dental assistant would have a formal education that would qualify her to provide intra-oral services including certain operative procedures. She would be allowed to place, condense and contour restorations in cavities prepared by the dentist, place and remove rubber dam, procure impressions for study casts, and perform additional functions commensurate with her capabilities and training.

## Public Health

### Quebec plans network of community health centres

Quebec is planning an integrated network of local community centres across the province that will become the citizen's first contact with health and social services, Social Affairs Minister Claude Castonguay told the Canadian Public Health Association April 22.

The centres will be of different types designed to suit the local community, but could provide services for medical and psycho-social consultation, dental care, diagnostic and laboratory services, child and maternal health and social services.

Two such centres are being developed now at Asbestos and the St-Henri section of Montreal.

## Research

### Caution urged in use of halothane

Caution should be exercised before the anaesthetic halothane is used more than once within three months on the same patient, a coroner's jury recommended in Toronto April 29.

The jury described halothane as "one of the best general anaesthetics in use today," but agreed with memoranda issued last December by H. B. Cotnam, Ontario's supervising coroner, and last April by the Ontario Medical Association, which cautioned against multiple use of halothane.

The jury's recommendation came in the wake of an inquest into a patient who had two minor foot operations

December 21 and February 1. Both times halothane was used. The patient died February 20 as a result of "massive dead liver cells consistent with halothane poisoning."

## New topical fluorides may be more effective

Investigators studying topical fluoride application have discovered three new agents that may offer greater protection against tooth decay than sodium fluoride.

Titanium tetrafluoride, one of the new agents, decreases enamel solubility and "glazes" enamel surfaces according to Sheila A. Mundorff of Rochester, NY.

Vera Caslavska, of the Forsyth Dental Centre in Boston, reports that acidulated ammonium fluoride is considerably more effective in depositing fluoride in the teeth than sodium fluoride. Examination by electron microscope has shown a film of fluoride-containing material on the surface of ammonium fluoride treated teeth.

A third scientist, J. R. Mellberg, of the Kendall Research Centre in Barrington, Illinois, has also reported that treatment of teeth with an ammonium silicofluoride solution increases the amount of fluoride deposits in tooth enamel three to four times over currently used conventional fluoride solutions.

## Laser treated enamel may be decay-proof

A single laser treatment of the teeth that would prevent decay for a lifetime was one of the possibilities raised at the International Association for Dental Research meeting in Chicago, March 18-21.

R. H. Stern, Los Angeles, told delegates how fragments of laser-treated and untreated enamel from freshly extracted teeth were placed inside tiny windows of a gold bridge in the mouth of a fellow scientist at the University of California at Los Angeles School of Dentistry.

The bits of enamel were shielded from toothbrushing by a thin gold plate to trap food debris and facilitate early decay in the enamel samples.

At the end of four weeks, the unlased samples exhibited the typical chalkiness of incipient decay while the lased enamel showed no signs of decay.

For comparison, additional tests were performed with the same technique, using fluoride treatment rather than the laser. The fluoride-treated tooth samples fared similarly well, exhibiting no decay.

Earlier, the investigators had studied laser effects on human tooth enamel in a test tube. They found that carbon dioxide laser alters the enamel, causing a sort of glazing effect, without generating heat sufficient to damage the pulp. The alteration of enamel may be just enough to prevent oral bacteria and acid from penetrating the enamel and initiating the decay process, Doctor Stern said.

## Scientists stimulate bone growth to hold plastic tooth implants

The inducement of new bone growth to retain plastic implanted teeth has been reported by two Boston University researchers.

Addressing the International Association for Dental Research last March, Ramesh Narang and Herbert Wells, both of Boston, said previous efforts to implant plastic teeth in monkeys for extended periods had failed when teeth loosened because of loss of supporting bone.

They overcame the bone resorption problem by stimulating new growth through transplantation of a piece of decalcified bone.

The decalcified bone can be transplanted from one monkey to the other, they found, without being rejected. The process of removing mineral from the bone also removed some part of the bone necessary for rejection to occur, they stated.

The scientists implanted the pieces of decalcified bone together with plastic teeth into fresh extraction sites in the monkeys.

After 22 weeks there was a decided increase of new bone, and this in turn resulted in the retention of a greater number of plastic teeth.

Since decalcified bone is not rejected, unrelated individuals – in the case of humans – could serve as donors, they pointed out.

## Endotoxin may cause bone loss in periodontal disease

Bone resorption in periodontal disease may be caused by bacterial endotoxin, according to the latest research by scientists at the Universities of Buffalo and Rochester, New York. Because bone loss becomes more severe in periodontal disease as the amount of bacteria and their products increases in and around the gingival crevice, the scientists decided to test the effects of endotoxin on bone growing in culture.

Results showed that even as little as 0.1$\mu$gm of endotoxin per millilitre of culture fluid caused marked bone resorption. More damage occurred with greater amounts of endotoxin. But when levels reached 10$\mu$gm/ml and higher, resorption decreased, probably because the substance killed bone cells.

These studies not only offer additional evidence implicating *Bacteroides melaninogenicus,* an oral organism in periodontal disease, but also suggest that endotoxin may be a valuable tool for studying bone resorption. The potency and biological stability of endotoxin may enable scientists to determine, at the molecular level, what makes bone cells differentiate into specialized osteoclasts. Such experiments also could provide information about cell specialization, in general, and about bone deterioration, whether from periodontal disease or osteoporosis.

## Link between tooth decay and heavy metals studied

A study in Manning, a small community near Rochester, New York, suggests that high concentrations of lead, zinc and cadmium seem to correlate with late eruption and increased incidence of caries.

Manning has unusually high levels of all three metals in its soil and plants. Water samples taken in 1968 showed 10ppm of these metals. East Oakfield, an equally small New York village chosen for comparison, is situated on a different type of soil which has only 3ppm of the three heavy metals. Both villages have little fluoride in their water supplies.

The number of carious surfaces and the average age at which teeth erupted were recorded in five-year groups (3-6, 7-10, 11-19). Although the number of children (23 in Manning, 19 in East Oakfield) was too small for statistical purposes, nevertheless the decay rate was consistently higher and the eruption time consistently delayed in Manning.

## Suggest retention of upper molars in youthful periodontosis

Recent investigations at the US National Institute of Dental Research indicate that extraction of upper molars should be avoided in treating youthful periodontosis.

The question of whether it is better to extract upper molars endangered by periodontosis or to give expensive and time-consuming treatment has long been in dispute.

Results of both procedures have been documented with x-ray photographs taken over a number of years. They show that, although some loss of bone and increase in air space in the maxillary sinus occurs with age regardless of disease or treatment, changes in both sinus and the alveolar process which holds the teeth are much more drastic when molars, especially maxillary first molars, are removed in youth.

After an initial year of repair and regrowth, the loss of alveolar bone in teenagers and young adults is often so rapid and severe that the roots of an adjacent sound molar are likely to be endangered in the next couple of years. After age 40, bone changes are much slower.

When periodontal disease occurs in adolescence or early childhood, one potentially dangerous effect in the upper jaw is the simultaneous thinning of bone and enlargement of the air space of the maxillary sinus. Danger of seepage of material from the diseased alveolar region through the cortex into the sinus could make treatment of an affected tooth almost impossible. Therefore, the investigators recommend that every effort be made to diagnose and treat periodontosis early in order to preserve the teeth and the integrity of the entire jaw.

## Awards and Appointments

Hubert La Belle

**Hubert La Belle,** Montreal, president of the Quebec Dental Surgeons Association, has been appointed a director of the Quebec Health Insurance Board.

The Cape Breton Island Dental Society recently presented Glace Bay, NS, dentist **J. H. Lawley** with a plaque commemorating his 50 years of service in the dental profession.

Beldent Inc of Clifton, NJ, has developed this 28 lb self-contained "dental office" which fits into a standard size attaché case. Its basic components include an extra-oral light with a focusable beam and flexible stem; a high-intensity diagnostic lamp; a pulp tester; handpiece assembly with miniaturized, high torque motor covering a speed range of 1,000 to 20,000rpm; a foot control, an amalgamator and an electro-surgery unit. The equipment, which does not require an air compressor, operates up to 16 hours from its fully charged, rechargeable gel cell power supply. It will also operate from 110 or 220 volt power line supplies. These external sources, as well as a 12 volt battery, can also be used to recharge the power pack.

## Deaths

Bowman, Gordon Russell. 44. Strathroy, Ont. University of Toronto, 1953. 23-3-71. Survived by Margaret (wife); Paul and Stephen (sons); Ruth (daughter); Mae Bowman (mother); Mrs. Robert Evans, Mrs. Bev Urbshott and Mrs. Leslie Charlton (sisters).

Herbert, John Vincent. 70. Toronto. Royal College of Dental Surgeons of Ontario, 1928. 26-4-71. Survived by Ella (sister).

Jackman, Vernon Melville. 72. Strasbourg, Sask. Royal College of Dental Surgeons of Ontario, 1924. 27-3-71. Survived by Lillian (wife); Doug (son); Mrs. Arnold MacMillan (daughter); Norman (brother); Mrs. Harry Perry and Miss Hazel Jackman (sisters); and six grandchildren.

Johnson, Carman Borden. 86. Calgary, Alta. Royal College of Dental Surgeons of Ontario, 1909. 3-4-71. Survived by Doctor Carman M. (son); Mrs. J. A. Irwin (daughter); and seven grandchildren.

Martin, Gerald Michael. 74. Ottawa. Royal College of Dental Surgeons of Ontario, 1922. 4-4-71. Survived by Patrick (son); Sister Lucille (daughter); Lorne (brother); Miss Frances Martin and Mrs. T. A. Bisson (sisters); and eight grandchildren.

McIntosh, William Taylor. 75. Toronto. Royal College of Dental Surgeons of Ontario, 1925. 12-4-71. Survived by Pearl (wife); Bill (son); Kin, Marnie and Jean (sisters); John and Peter (brothers); and Lisa Guy and Douglas (grandchildren).

Miyake, Eiju. 77. Toronto. Royal College of Dental Surgeons of Ontario, 1920. 3-4-71. Survived by Tsuru (wife); Mrs. Luke Tanabe and Mrs. Tom Watanabe (daughters); and eight grandchildren.

Munn, James Alexander. 71. Seaforth, Ont. Northwestern University, Chicago, 1922. 12-3-71. Survived by Lois (wife); Doctor Donald and Doctor William (sons); and 11 grandchildren.

Springbett, Edward V. 70. Vancouver. University of Alberta, 1934. 27-3-71.

Stinson, Edward Darwin. 73. Winnipeg. Royal College of Dental Surgeons of Ontario, 1924. 2-6-70.

Thompson, Percy George Michael. 63. Fredericton, NB. University of Pittsburgh, 1932. 14-4-71. Survived by Edna (wife); Brian (son); Harold, Thomas and John (brothers); and Mrs. Kathleen Murlaugh and Mrs. Michael Gabriel (sisters).

Weiler, Eugene Joseph. 77. Mildmay, Ont. Royal College of Dental Surgeons of Ontario, 1922. 21-4-71. Survived by Melinda (wife); Mrs. E. Horbatiuk (daughter); Doctor Kenneth and Doctor Ronald (sons); and 10 grandchildren. Associate member CDA.

## Le Congrès national

### Conférence du Dr Topazian en chirurgie buccale

La Société canadienne des chirurgiens buccaux, qui tiendra sa réunion annuelle lors du Congrès national de l'ADC à Ottawa, organise à cette occasion une demie journée d'études sur les dernières techniques d'interventions préprothétiques.

Le Dr Richard G. Topazian, chef de section et professeur de chirurgie buccale au Medical College of Georgia, prendra la parole devant la Société le vendredi matin, premier octobre au Centre Médical de la Défense Nationale.

Il décrira la pathogénèse de l'instabilité des prothèses et indiquera les principes à suivre durant la chirurgie de l'os et des tissus mous en prosthodontie. Le Dr Topazian parlera également du traitement des anomalies des tissus mous.

Le distingué chirurgien buccal décrira en outre le traitement de l'atrophie mandibulaire par vestibuloplastie et relèvement de la crête à l'aide d'os et de matériaux alloplastiques. Il discutera enfin du traitement des déformations acquises de la mâchoire chez les édentés.

Le vendredi après-midi aura lieu une conférence clinico-pathologique consistant en l'examen de rapports sur plusieurs cas difficiles et en la discussion du diagnostic et du traitement.

La réunion annuelle des membres aura lieu à 16 h. au Centre Médical de la Défense Nationale. Ce même jour, un cocktail à l'Hôtel Skyline précèdera la soirée du Président de l'ADC.

Les membres de la SCCB sont invités à participer aux activités de la Société canadienne des orthodontistes le jeudi matin 30 septembre à l'Hôtel Skyline. Ils pourront également assister à l'Assemblée annuelle du Collège Royal des Chirurgiens-Dentistes du Canada le jeudi après-midi.

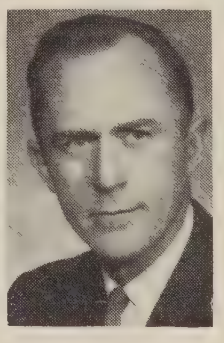
### Discussion des problèmes posés par les prothèses

Les difficultés que les dentistes éprouvent chez les porteurs de prothèses seront étudiées lors du Congrès national de l'ADC à Ottawa. Trois dentistes de l'Université Dalhousie identifieront et proposeront leurs solutions à quelques problèmes couramment rencontrés durant la fabrication des prothèses complètes. Il s'agit des Drs D. V. Chaytor et A. H. Ervin, tous deux professeurs agrégés en prosthodontie, et le Dr J. M. Gourley, professeur assistant en matériaux dentaires. Leur conférence est prévue pour le vendredi après-midi, 1er octobre.

D. V. Chaytor

A. H. Ervin

J. M. Gourley



W. H. Feasby

Le Dr Chaytor a exercé en cabinet privé et en hygiène publique à Terre-Neuve, province dont il est originaire, avant de venir s'établir à Halifax en 1968. Le Dr Gourley a obtenu ses diplômes de BSc et de PhD en chimie de l'Université Nottingham, en Angleterre, avant de venir au Canada. Le Dr Ervin a terminé ses études à l'Université Dalhousie en 1944. Il a ensuite obtenu une Maîtrise ès Sciences en prosthodontie à l'Université de l'Ohio en 1969.

### Les pédodontistes pourront entendre le Dr Buonocore

L'Académie canadienne de pédodontie se réunira à l'Hôtel Skyline pendant deux jours, les 30 septembre et 1er octobre, lors du Congrès national de l'ADC à Ottawa.

Le programme scientifique comprend des exposés sur "Les techniques de la communication" (A. Shapira); "L'étude radiographique de l'éruption des dents" (W. H. Feasby, London, Ont); "L'effet de la physiologie buccale sur le traitement au diphenylhydantoïne" (D. A. King); "La prévention des caries grâce au scellement des puits et fissures" et "Liaison adhésive à l'émail" (Michael Buonocore, Rochester, NY); et "Comparaison entre l'examen clinique par fibres optiques et par radiographie pour déceler les caries" (K. Titley).

Le conseil exécutif national de la Société canadienne de dentisterie pour les enfants se réunira le jeudi 30 septembre à 9h. L'assemblée annuelle de l'Académie canadienne de pédodontie aura lieu le jeudi après-midi à 15h30.

### Les dentistes militaires discuteront de prothèses partielles et de périodontie

Lors du Congrès national d'Ottawa, deux instructeurs des Forces armées canadiennes en garnison à la Base

Borden, en Ontario, traiteront de la maladie périodontique et de la correction des complications causées par les prothèses partielles amovibles.

Le Lt-Col Paul S. Sills examinera le diagnostic des douleurs apparaissant à la suite de l'insertion des prothèses partielles amovibles. Il abordera aussi les causes et l'élimination de l'irritation des tissus, la douleur impliquant les dents naturelles, le déplacement des prothèses, les difficultés de mastication et les troubles de phonétique. Sa conférence aura lieu dans la matinée du jeudi, 30 septembre. Le Maj. Leland A. Reynolds passera en revue les notions fondamentales en périodontie ainsi que les procédés chirurgicaux susceptibles d'intéresser les généralistes. Son exposé est prévu pour le samedi matin, 2 octobre.

Le Lt-Col Sills est instructeur en chef de l'Ecole des services dentaires des Forces armées canadiennes à Borden où il dirige également la section de prosthodontie. Le Maj. Reynolds en dirige la section de périodontie.

Maj. L. A. Reynolds

Lt.-Col. P. S. Sills

### Conférences du Dr Arnim en hygiène publique

Le Dr R. E. Feasby, président de la Société canadienne des dentistes-hygiénistes, annonce que celle-ci se réunira le vendredi 1er octobre, lors du Congrès national de l'ADC à Ottawa.

Le Dr Sumter S. Arnim, doyen de l'Ecole des sciences biomédicales de l'Université du Texas à Houston, parlera devant l'ensemble des congressistes le vendredi matin à 10h. Il traitera de la dentisterie préventive pratique dans le cabinet dentaire moderne. Le Dr Arnim s'adressera à la Société des dentistes-hygiénistes l'après-midi à 14h. dans la salle Joliette de l'Hôtel Skyline. L'assemblée annuelle aura lieu à 15h30, immédiatement après la conférence.

## L'Association

### L'exécutif de l'ADC étudie la réorganisation du siège social

Le Conseil Exécutif de l'ADC, qui s'est réuni du 22 au 24 mars, a reçu un rapport sur la réorganisation du siège social et a nommé un comité spécial chargé de formuler les objectifs de l'Association ainsi que les priorités dans ses services.

Le rapport propose des changements importants concernant le personnel: la nomination d'un directeur de l'administration, d'un directeur des communications, d'un rédacteur supplémentaire pour les actualités du Journal, et d'un responsable de l'information du public. Les annonces du Journal et du Congrès ne seraient plus effectuées à l'extérieur mais seraient assumées par un publiciste faisant partie du personnel. L'étude sur le siège social, ordonnée par le Bureau des Gouverneurs lors de sa réunion annuelle de 1970, a été effectuée par la firme Thorne Group Management Consultants de Toronto.

Le rapport suggère également une étude supplémentaire pour déterminer quels services devraient être fournis par le siège social de l'ADC. Le Conseil Exécutif a, par conséquent, nommé un comité restreint chargé de définir les objectifs de l'Association et d'évaluer ses services en tenant compte de leur coût, de leur utilisation et d'autres méthodes capables de fournir ces services. Le comité est aussi chargé d'évaluer la priorité de chacune des activités et de formuler des propositions concernant le personnel requis et les locaux nécessaires pour accomplir les services désignés.

Le Conseil a aussi approuvé le principe de déménager le siège de l'ADC à Ottawa et a autorisé le comité spécial à utiliser toute assistance nécessaire pour rechercher un endroit approprié et des locaux convenables dans la capitale fédérale.

Le Conseil Exécutif a appris que les 10 membres corporatifs sont plus ou moins en faveur de supprimer la stipulation qui veut que les services de chirurgie buccale prescrits pour des besoins médicaux et couverts par la loi d'assurance-maladie du Canada soient effectués en milieu hospitalier. Le Conseil a demandé au Directeur général d'entrer en contact avec le ministre de la Santé nationale et du Bien-être social et de chercher à faire supprimer cette stipulation.

Le Conseil a par ailleurs:

–Approuvé deux propositions du Conseil de l'enseignement – l'une visant à agréer les programmes d'enseignement sans but lucratif pour les assistantes dentaires; l'autre visant à tenir une conférence sur l'éducation dentaire permanente;

–Autorisé l'attribution de $2,000 pour défrayer le coût d'un rubrique sur l'hygiène dentaire commanditée par l'ADC qui serait publiée dans les principaux quotidiens;

–Autorisé un sondage des membres de l'ADC visant à déterminer combien seraient intéressés à s'abonner à un service d'éducation permanente au moyen de cassettes magnétiques;

–Approuvé le choix de St. John's, Terre-Neuve, à la fin août 1975, et d'Edmonton au début de l'automne 1976 pour le Congrès national;

–Autorisé le paiement aux sections de l'ADC sur la base de $10 par membre de section inscrit au Congrès national 1971 à Ottawa;

–Demandé au Conseil des communications d'étudier certaines méthodes destinées à encourager la publication de revues dentaires estudiantines; et enfin

–Rejeté une suggestion visant à faire de tous les anciens présidents de l'ADC des membres honoraires de l'Association.

### Recommandation en faveur d'un programme de placement de l'ADC

Le Conseil des assurances et des placements s'est réuni à Toronto les 1 et 2 avril et a adopté une résolution recommandant d'élargir le régime d'épargne-retraite de l'ADC en ajoutant au fonds à revenu fixe et au fonds d'actions ordinaires qui existent déjà, un fonds mixte et un compte à intérêts. Le Conseil recommande aussi la création d'un programme de placement non enregistré doté de quatre systèmes comparables.

Une résolution distincte du Conseil a approuvé le principe de faire bénéficier les employés des dentistes de la protection du revenu accordée par le système d'assurance national-provincial.

Le fonds mixte permet à la compagnie Royal Trust, au nom des investisseurs de l'ADC, d'acheter et de vendre des unités de valeurs des trois autres portefeuilles selon les exigences du marché. La compagnie de fiducie remplirait donc sa fonction habituelle, choisissant des valeurs d'après la classification générale de dette et de risque et choisissant aussi le domaine qui est le plus intéressant à une certaine période donnée.

Le compte à intérêts ressemblerait à un compte bancaire et fonctionnerait à la valeur au pair. La fluctuation de la valeur marchande qui se produit dans le compte à revenu fixe ne se présenterait pas dans ce système. Chaque année, le total des intérêts accumulé dans ce compte serait réparti entre les comptes des membres au prorata de leur avoir. Le compte à intérêts devrait être particulièrement utile pour protéger les membres qui approchent de leur retraite, des fluctuations défavorables dans la valeur de leurs avoirs totaux.

Un rapport de William M. Mercer Ltd, la firme d'actuaires-conseils qui ont évalué ce programme d'investissement, recommande que le régime:

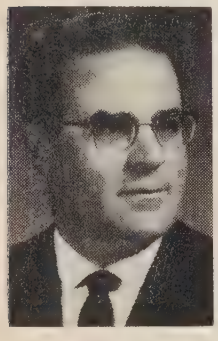
–Exige que tous les revenus de placement soient ré-investis sur réception; et

C'est le Dr Paul Dionne, de Joliette, qui a gagné deux billets pour Amsterdam et Paris, lors des Journées Dentaires du Québec. Ces prix ont été offerts à l'occasion du récent congrès, les 5-7 mai, 1971. On remarque, de g. à d., le Dr Claude Chicoine, directeur du congrès; le président de l'ADPQ, le Dr Hubert La Belle; le Dr Dionne; le représentant de la compagnie aérienne KLM, M. Jack Van der Sluys; et le directeur du programme social, le Dr Irwin Margolese.

–Permette que les dépôts soient effectués aux mêmes dates trimestrielles que celles du Régime d'épargne-retraite.

### M. Lévesque: nouveau conseiller d'assurances du CDSPI pour les dentistes du Québec

M. W. E. Jackson, administrateur du Canadian Dental Service Plans Inc, vient d'annoncer la nomination de M. André Lévesque, avocat et courtier d'assurances agréé, propriétaire de la firme André Lévesque et Associés dans la ville de Québec, comme conseiller en matière d'assurances pour tous les dentistes de la province de Québec.



André Lévesque

M. Lévesque est très bien connu dans le domaine des assurances à travers le Canada et il est un ancien président de l'Association des courtiers d'assurances de la province de Québec. Ses services ont été retenus à plusieurs reprises depuis de nombreuses années comme conférencier dans toute la province, à Toronto, à Banff et à Vancouver. Les services de sa firme sont maintenant disponibles pour tous les dentistes québécois à 100 Place d'Youville, chambre 110, Québec 4, Qué.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 avril 1971:

*Fonds à revenu fixe* $11.765;

*Fonds d'actions ordinaires* $24.078.

L'avoir total (valeur marchande) du régime se montait à $10,801,661.16.

Au cours du mois précédent, les transactions ont été les suivantes: achat 5,000 actions de Commonwealth Holiday Inns et 4,000 actions de Maclean-Hunter Ltd.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Les organismes dentaires

### Le Dr Cloutier devient président de l'ACSD

Lors de sa journée d'étude annuelle qui a eu lieu au Centre social de l'Université de Montréal, l'Académie canadienne des sciences dentaires a choisi le Dr François Cloutier comme président pour l'année 1971. Le président sortant de charge, le Dr Germain Auger, fit alors une brève rétrospective des activités des derniers mois.

Le Dr Cloutier profita de l'occasion pour annoncer la formation de trois nouvelles sections de l'Académie soit: (1) en France, sous le présidence du Dr Jean Délibéros, ancien président de la Fédération Dentaire Internationale; (2) aux Etats-Unis, avec le Dr Franklin Miller de New York; (3) en Haïti, sous la direction du Dr Sosthène Daniel, ministre de la Santé.

De plus, cinq membres de l'Académie se rendirent en Haïti à la Faculté d'Odontologie de l'Université Port-au-Prince, pour donner des cours d'appoint aux dentistes haïtiens.

A la demande des autorités universitaires haïtiennes et de leur ministre de la Santé, un nouveau groupe de dentistes est en voie de formation pour une nouvelle série de cours plus élaborés.

François Cloutier

## L'économie

### Système de prêts pour les étudiants dentaires qui resteront au Manitoba

Le premier ministre du Manitoba, M. Ed Schreyer, a annoncé des mesures financières destinées à encourager les diplômés dentaires à s'établir dans la province.

Dès la prochaine année académique, les étudiants dentaires de l'Université du Manitoba pourront obtenir des prêts spéciaux, portant intérêt, mais remboursables sous forme de "service dans la province".

La situation financière ne comptera pas dans l'attribution de ces prêts qui visent à inciter les diplômés à s'établir au Manitoba, surtout dans les zones rurales.

Les étudiants pourront recevoir des prêts de $2,400 la première année, $2,900 la deuxième, $2,300 la troisième

et $1,900 la quatrième. Les étudiants mariés auraient droit à $1,000 de plus.

Après l'obtention de leur diplôme, les bénéficiaires rembourseront les prêts à raison de $250 par mois de pratique dans une localité désignée par le gouvernement. Toute partie du prêt non remboursée sous forme de service sera remboursable en argent, plus l'intérêt.

### Nouvelles pressions des denturologistes ontariens

Les denturologistes de l'Ontario ont demandé au ministre provincial de la Santé de les autoriser à traiter directement avec le public.

Un mémoire présenté par la Denturist Society of Ontario, qui prétend représenter plus de 90 établissements, révendique le droit de réparer, concevoir et fabriquer les prothèses complètes et partielles ainsi que de prendre des empreintes et de faire l'enregistrement de l'occlusion.

### Conférence nationale sur les médecins adjoints

Une conférence nationale qui a eu lieu à Ottawa du 6 au 8 avril s'est penchée sur le genre d'auxiliaire dont les médecins ont besoin et sur les moyens de le leur fournir.

L'un des principaux exposés portant sur les conditions auxquelles des médecins adjoints recevraient l'autorisation d'exercer – a été présenté par M. Horace Krever, professeur de droit à l'Université Western Ontario et ancien membre du Ontario Committee on the Healing Arts.

La conférence était organisée par le ministère de la Santé nationale et du Bien-être social, l'Association Médicale Canadienne, l'Association des Médecins de Langue Française du Canada, l'Association des Infirmières Canadiennes et l'Association des Consommateurs du Canada. Les participants comprenaient des médecins, des infirmières, des consommateurs, des planificateurs de services de santé, des chercheurs et des éducateurs.

### L'assurance-maladie coûtera $550 millions à Ottawa

L'assurance-maladie coûtera $550 millions au trésor fédéral pendant la prochaine année fiscale alors que toutes les 10 provinces y participeront.

L'assurance-maladie reviendra en réalité au double de cette somme – puisqu'Ottawa assume la moitié du coût moyen national de l'assurance.

Ottawa avait commencé à verser sa part aux régimes d'assurance provinciaux dès le premier juillet 1968, mais ce n'est pas avant le premier janvier de cette année que la dernière province – le Nouveau-Brunswick – a mis en place son régime d'assurance.

Le gouvernement fédéral s'attend à verser $550 millions entre le 1er avril 1971 et le 31 mars 1972, soit $150 millions de plus que la contribution versée pendant l'année fiscale précédente, année où trois provinces n'ont pas participé au régime pendant la totalité des 12 mois.

Le Québec s'est joint à l'assurance-maladie le premier novembre, l'Ile du Prince-Edouard le premier décembre et le Nouveau-Brunswick en janvier.

Au cours de l'année fiscale 1971-72, Ottawa versera $250 millions pour l'assurance-hospitalisation obligatoire en plus de sa contribution à l'assurance-maladie.

On estime que le total des dépenses fédérales en assurance-maladie atteindra $811.6 millions.

## La recherche

### Stimulation de la croissance osseuse pour mieux fixer les dents de plastique

Deux chercheurs de l'Université de Boston signalent qu'ils ont provoqué une nouvelle croissance de l'os pour mieux retenir les dents de plastique implantées.

En mars dernier, les Drs Ramesh Narang et Herbert Wells, de Boston, ont déclaré devant l'Association internationale pour la recherche dentaire qu'ils n'avaient pas réussi auparavant à implanter des dents de plastique chez des singes pendant des périodes assez longues car les dents devenaient mobiles par suite du manque d'os de soutien.

Ils ont résolu le problème de la résorption osseuse en stimulant une nouvelle croissance de l'os grâce à la transplantation d'un morceau d'os décalcifié.

Ils ont découvert que l'os décalcifié peut être transplanté d'un singe à un autre sans être rejeté. Ils pensent que le processus de déminéralisation de l'os en retire aussi les éléments nécessaires au rejet.

Les chercheurs implantèrent les morceaux d'os décalcifié ainsi que les dents de plastique dans des alvéoles de singes.

Au bout de 22 semaines, il y avait une nette formation d'os nouveau qui se traduisait par la rétention d'un plus grand nombre de dents de plastique.

Les chercheurs font remarquer que puisque l'os décalcifié n'est pas rejeté, des individus non apparentés pourraient servir de donneurs chez les humains.

### Etude sur le rôle des tétines

Après avoir étudié le sujet pendant 19 années, un groupe de chercheurs dentaires de l'Université de Toronto concluent que les bébés auxquels on permet de sucer une tétine pendant la période qui suit le sevrage ont moins tendance à sucer leur pouce ou leurs doigts que ceux auxquels on ne donne pas de tétine. En conséquence, ils ont beaucoup moins de chances de développer un alignement défectueux des dents.

Des enfants comprenant cinq groupes d'âge – trois, six, huit, 10 et 12 ans – furent étudiés au Centre de recherche orthodontique de Burlington (Ont). On observa que dans l'ensemble la succion du pouce ou des doigts était associée à une augmentation de la malocclusion. Le degré de déplacement variait selon l'intensité et la durée de l'habitude de sucer.

Cependant, chez les enfants qui arrêtaient de sucer leur pouce avant l'âge de six ans, la généralité de la malocclusion ne dépassait pas la normale.

Les résultats de cette étude ont été présentés le 20 mars à Chicago lors d'une réunion de l'Association américaine de la recherche dentaire. Les chercheurs canadiens, sous la direction du Dr Frank Popovitch, de Burlington, trouvèrent que la malocclusion qui était associée à la succion du pouce était d'un type distinct, et différait des malocclusions dues à d'autres facteurs. Les suceurs de pouce accusaient en particulier un rétrécissement des arcades dentaires supérieure et inférieure et une déformation vers l'extérieur du procès alvéolaire dans la région des incisives.

Les enfants utilisant des tétines avaient plus de deux fois moins de chances de présenter une malocclusion que ceux qui se servaient d'anneaux de dentition ou n'avaient pas de tétine.

Les chercheurs signalent également une relation certaine entre la fréquence de l'habitude de sucer et (1) l'occupation du père, (2) le nombre d'enfants dans la famille et (3) la durée de la période de sevrage.

L'habitude de sucer ne présentait pas de variation importante parmi les enfants groupés d'après l'âge et l'origine raciale des parents, l'ordre de naissance, l'horaire des repas fixe ou libre, ou l'importance de l'appétit de l'enfant.

La plus grande proportion de suceurs de pouce se trouve chez les familles des professions libérales ou de cadres supérieurs (55 p.c.), tandis que les fermiers ont le taux le plus bas (28 p.c.). Les autres groupes – voyageurs de commerce, ouvriers qualifiés ou non-qualifiés, employés de bureau et personnes à leur compte – en ont un taux médian de 39 p.c.

L'évaluation par nombre d'enfants place le taux le plus bas dans les familles ayant un seul enfant ou quatre enfants.

# Les conditions buccales et dentaires chez l'enfant canadien d'origine française

**J. Georges Perreault, DDS, MS**
**Arto Demirjian, DDS, MSD**
**Gabriella Beiger, DDS**
**Milos Jenicek, MD, PhD**
**Montréal**

*Ce premier travail sur l'évaluation de l'état de la dentition des enfants canadiens d'origine française révèle une prévalence prononcée de la carie dentaire. Ces données sont plus élevées que celles des enfants de l'Ontario et de la Colombie-Britannique qui ont été exposés à un programme intensif d'éducation et de santé dentaire publique depuis 10 ans. D'autres facteurs importants pourront être analysés lorsque cette étude sera terminée.*

*This preliminary report indicates that dental caries is more prevalent in French Canadian school children than in their Ontario or British Columbia counterparts who have been exposed to 10 years of intensive dental health education. Other contributing factors will be evaluated when the study has been completed.*

Les études épidémiologiques sur la santé buccale et dentaire de l'enfant canadien d'origine française n'ont reçu jusqu'à présent que très peu d'attention. Aucune étude complexe et détaillée concernant l'état de la dentition de l'enfant au Québec n'a été produite jusqu'à ce jour, malgré le besoin urgent de données de référence pour la santé dentaire publique.

Les études actuelles sont orientées surtout vers le problème de la carie dentaire sous la forme, ou de mesures préventives (fluoration, éducation et hygiène dentaire, surveillance régulière médicale dentaire), ou de mesures curatives.[1-3] Sous cet aspect, le problème de la carie dentaire et des phénomènes associés sont considérés, à l'époque actuelle, comme un problème épidémiologique[4] et peut revêtir le caractère d'un processus épidémique ou endémique dans les conditions données. Ce processus ainsi réparti dans l'espace et dans le temps est caractérisé par les divers paramètres épidémiologiques, déjà en majeure partie standardisés.[5-7] La constatation d'un état, à un moment donné (études de prévalence), est devenue une méthode courante de travail, mais la pondération et l'interprétation logique de l'action des facteurs déterminants et conditionnels, dans le problème complexe de la carie dentaire, donne encore des résultats difficilement comparables en ce moment.

Pour établir une comparaison avec d'autres enfants du Canada, nous avons choisi les données, provenant des provinces de Colombie-Britannique et d'Ontario.[8, 9] Ces données originent d'études sur des populations très différentes au point de vue des facteurs et des conditions se rapportant à l'évolution de la carie (comme les programmes intensifs d'éducation dentaire) et au point de vue de la méthodologie du travail (examens exécutés par de nombreuses équipes d'une composition hétérogène, etc). Si nous voulons évaluer l'importance du phénomène évolutif de la carie chez nos enfants, par rapport aux autres études au Canada, il nous faut prendre ces faits en considération. Si par contre nous voulons comparer l'état de la dentition de nos enfants avec les enfants du même fond génétique (enfants français), nous n'avons à notre disposition que le travail de Papillard.[10]

Le but de la présente publication est: (1) de donner un tableau descriptif de l'état de la dentition de nos enfants; (2) de comparer nos données avec d'autres données chez d'autres populations jeunes du Canada; (3) de comparer l'état de la dentition de notre groupe d'enfants avec celui d'autres groupes du même fond génétique; et (4) d'introduire nos données dans le contexte des ouvrages internationaux, afin d'évaluer l'importance du problème de la manière la plus extensive possible.[11]

**Première dentition. co (dents) ou df (teeth) : filles et garçons** **Tableau 1**

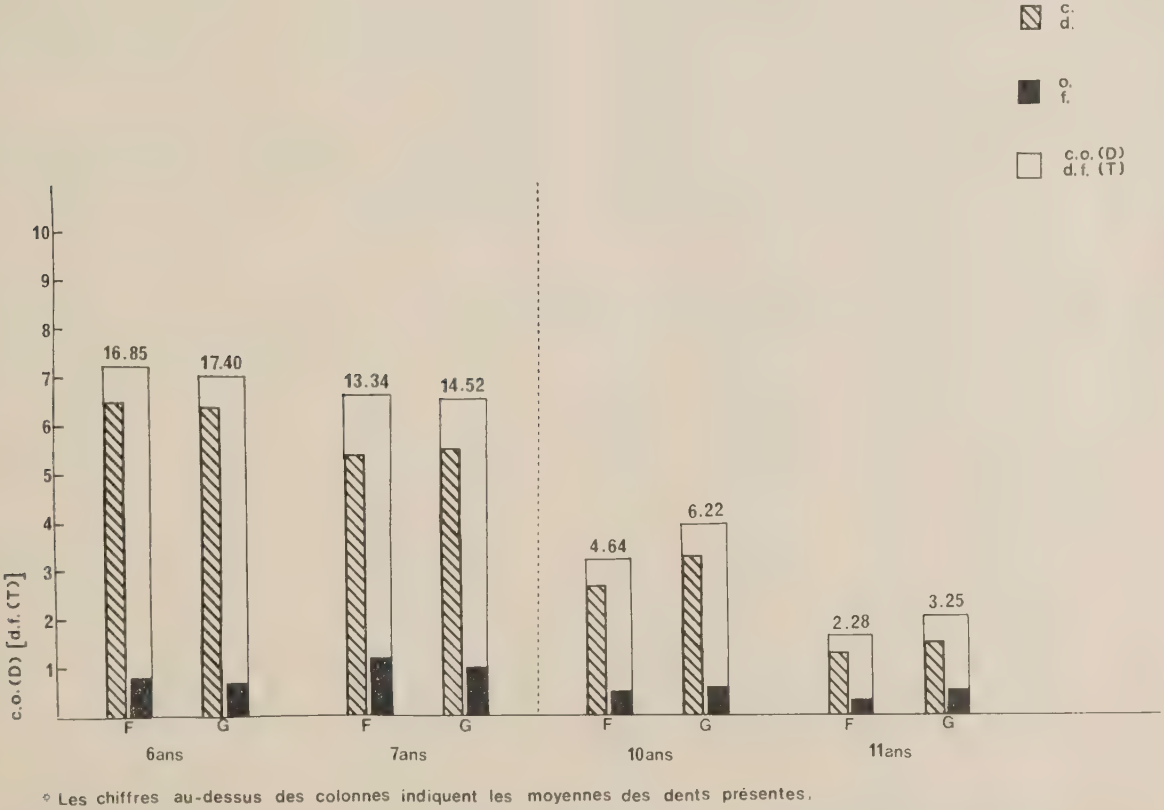
| Âge | Sexe | Nombre | Moyenne | Écart-type | Médiane | Limites de confiance P<0.05 | Limites de confiance P<0.01 | Moyenne pondérée |
|---|---|---|---|---|---|---|---|---|
| 6 | F | 98 | 7.1735 | 4.0155 | 7.1700 | 7.9685- 6.3785 | 8.2200- 6.1270 | 7.0728 |
| | G | 108 | 6.9815 | 4.0138 | 6.7800 | 7.7554- 6.2076 | 8.0003- 5.9627 | |
| 7 | F | 89 | 6.5618 | 3.7263 | 6.3130 | 7.3359- 5.7877 | 7.5808- 5.5428 | 6.5107 |
| | G | 97 | 6.4639 | 3.6488 | 6.2900 | 7.1900- 5.7378 | 7.4197- 5.5081 | |
| 10 | F | 112 | 3.1786 | 2.7744 | 2.9300 | 3.6924- 2.6648 | 3.8549- 2.5023 | 3.5294 |
| | G | 109 | 3.8899 | 2.9731 | 3.6800 | 4.4480- 3.3318 | 4.6246- 3.1552 | |
| 11 | F | 92 | 1.5109 | 1.9072 | 0.8640 | 12.4718-10.5064 | 12.7827-10.1955 | 1.7895 |
| | G | 98 | 2.0510 | 2.3170 | 1.4200 | 11.0816- 9.4286 | 11.3431- 9.1671 | |

## Matériel et méthode

A l'Université de Montréal, le Centre de recherche sur la croissance a commencé, en 1966-67, une évaluation systématique de l'état de la dentition de l'enfant canadien d'origine française. Cette étude, semi-longitudinale, suit pour la quatrième année, deux groupes d'écoliers, qui avaient six et 10 ans au début. Cette investigation fait partie de la recherche globale sur la croissance et le développement somatique et cranio-maxillo-facial et des facteurs qui les déterminent chez les enfants canadiens d'origine française. Ces observations devraient, dans les années à venir, donner un tableau de l'état de la dentition de nos enfants de six à 14 ans.

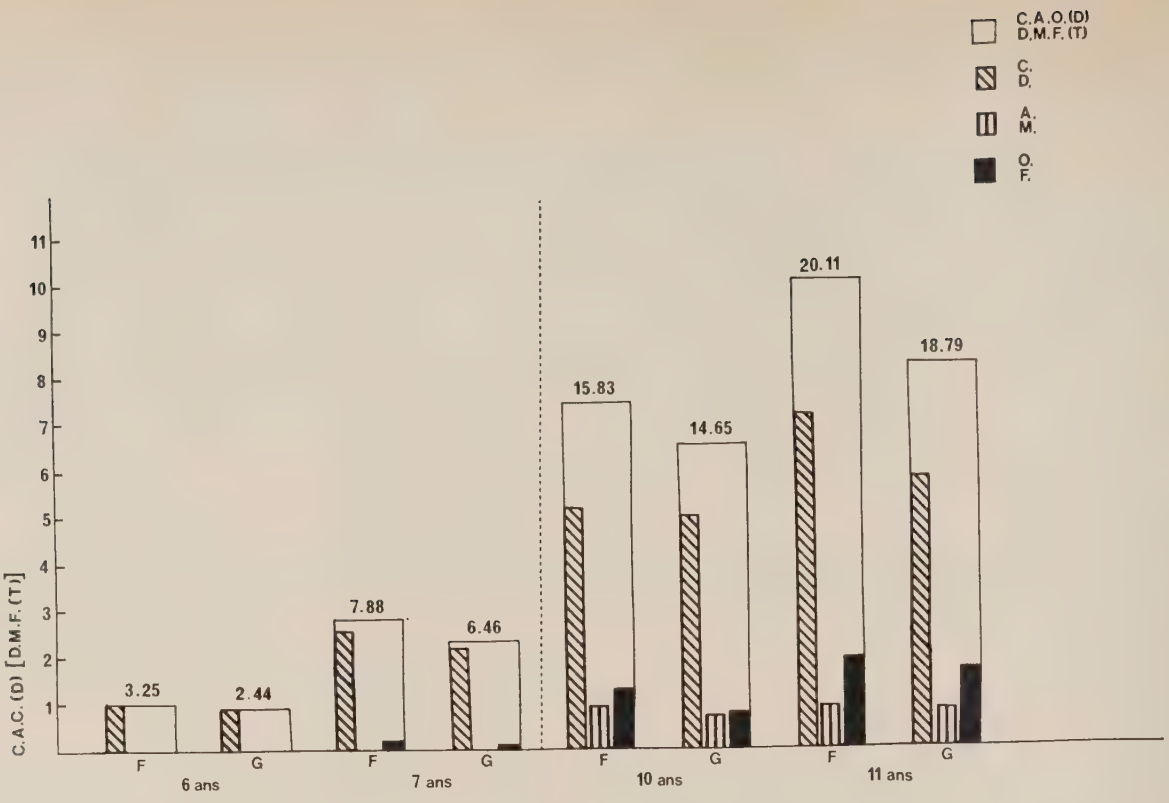
Le projet a commencé avec 109 garçons de six ans, 101 filles de six ans, 109 garçons de 10 ans et 112 filles de 10 ans. Le recrutement de ces enfants a été possible grâce à la collaboration des autorités de la Commission des écoles catholiques de Montréal, des principaux d'écoles et des directeurs de districts. L'échantillon final a été formé à partir de listes d'étudiants qui fréquentent les écoles de trois secteurs distincts de la ville de Montréal, représentant trois paliers socio-économiques différents.

Le volontariat de la part des enfants et de leurs parents et une généalogie descendante canadienne




* Les chiffres au-dessus des colonnes indiquent les moyennes des dents présentes.

Fig 1 Première dentition. co ou df moyen d'un groupe de garçons et filles de six, sept, 10 et 11 ans.




* Les chiffres au-dessus des colonnes indiquent les moyennes des dents présentes.

Fig 2 Deuxième dentition. CAO ou DMF moyen d'un groupe de garçons et filles de six, sept, 10 et 11 ans.

d'origine française d'au moins trois générations sont les conditions d'appartenance au projet. La fluctuation annuelle qui est d'environ 10 p.c. est comblée, par l'addition d'un nombre correspondant d'enfants, selon les mêmes critères de choix statistique.

Les enfants, ainsi choisis, sont examinés une fois par année à la date de leur anniversaire de naissance (s'il y a une variante, elle n'est jamais de plus de 14 jours, soit avant soit après la date d'anniversaire) par une équipe stable de chirurgiens dentistes à laquelle un personnel auxiliaire est adjoint. Chaque étape de l'étude est suivie par la même personne afin de réduire au minimum l'erreur personnelle. L'examen clinique se fait dans les locaux spécialement équipés où les conditions sont standards: lumière artificielle, miroir, explorateur no 5, chaise dentaire, etc.

L'examen consiste dans l'évaluation: (1) de l'état des dents: dents cariées, dents manquantes, dents obturées; (2) de la séquence d'apparition des dents en bouche; (3) de l'hygiène buccale; et (4) de l'état des gencives et des muqueuses buccales. Les données que nous présentons sont extraites de l'ensemble des observations enregistrées sur les fiches individuelles.

L'examen clinique est complété par l'examen des radiographies coronaires postérieures et panoramiques de la bouche; le résultat de ces observations n'a pas été inclus dans le présent travail.

**Deuxième dentition. CAO (dents) ou DMF (teeth): filles et garçons** **Tableau 2**

| Âge | Sexe | Nombre | Moyenne | Écart-type | Médiane | Limites de confiance P<0.05 | Limites de confiance P<0.01 | Moyenne pondérée |
|---|---|---|---|---|---|---|---|---|
| 6 | F | 98 | 1.0510 | 1.4948 | .3450 | 1.3469-0.7551 | 1.4405-0.6615 | 1.0097 |
| | G | 108 | .9722 | 1.6991 | .2610 | 1.2926-0.6518 | 1.3940-0.5504 | |
| 7 | F | 89 | 2.7865 | 1.8057 | 3.5400 | 3.1616-2.4114 | 3.2803-2.2927 | 2.5645 |
| | G | 97 | 2.3608 | 1.7211 | 2.4700 | 2.7033-2.0183 | 2.8116-1.9100 | |
| 10 | F | 112 | 7.4732 | 3.9773 | 6.5000 | 8.2098-6.7366 | 8.4428-6.5036 | 7.0000 |
| | G | 109 | 6.5138 | 3.3846 | 5.7500 | 7.1492-5.8784 | 7.3501-5.6775 | |
| 11 | F | 92 | 9.9783 | 5.0622 | 8.9300 | 11.0127-8.9439 | 11.3399-8.6167 | 9.0632 |
| | G | 98 | 8.2041 | 4.6105 | 7.0400 | 9.1169-7.2913 | 9.4056-7.0026 | |

**Dentition mixte. CAO (dents) + co (dents) ou DMF (teeth) + df (teeth): filles et garçons** **Tableau 3**

| Âge | Sexe | Nombre | Moyenne | Écart-type | Médiane | Limites de confiance P<0.05 | Limites de confiance P<0.01 | Moyenne pondérée |
|---|---|---|---|---|---|---|---|---|
| 6 | F | 98 | 8.2245 | 4.5124 | 8.0000 | 9.1179- 7.3311 | 9.4005- 7.0485 | 7.7297 |
| | G | 108 | 7.9537 | 4.2808 | 7.2330 | 8.7610- 7.1464 | 9.0164- 6.8910 | |
| 7 | F | 89 | 9.3483 | 4.1727 | 9.5600 | 10.2152- 8.4814 | 10.4894- 8.2072 | 9.0752 |
| | G | 97 | 8.8247 | 4.0130 | 8.9400 | 9.6233- 8.0261 | 8.8759- 7.7735 | |
| 10 | F | 112 | 10.6518 | 3.7265 | 10.5000 | 11.3419- 9.9617 | 11.5602- 9.7434 | 10.5294 |
| | G | 109 | 10.4037 | 4.2254 | 10.1400 | 11.1969- 9.6105 | 11.4478- 9.3596 | |
| 11 | F | 92 | 11.4891 | 4.8095 | 10.6400 | 12.4718-10.5064 | 12.7827-10.1955 | 10.8526 |
| | G | 98 | 10.2551 | 4.1748 | 10.0000 | 11.0816- 9.4286 | 11.3431- 9.1671 | |

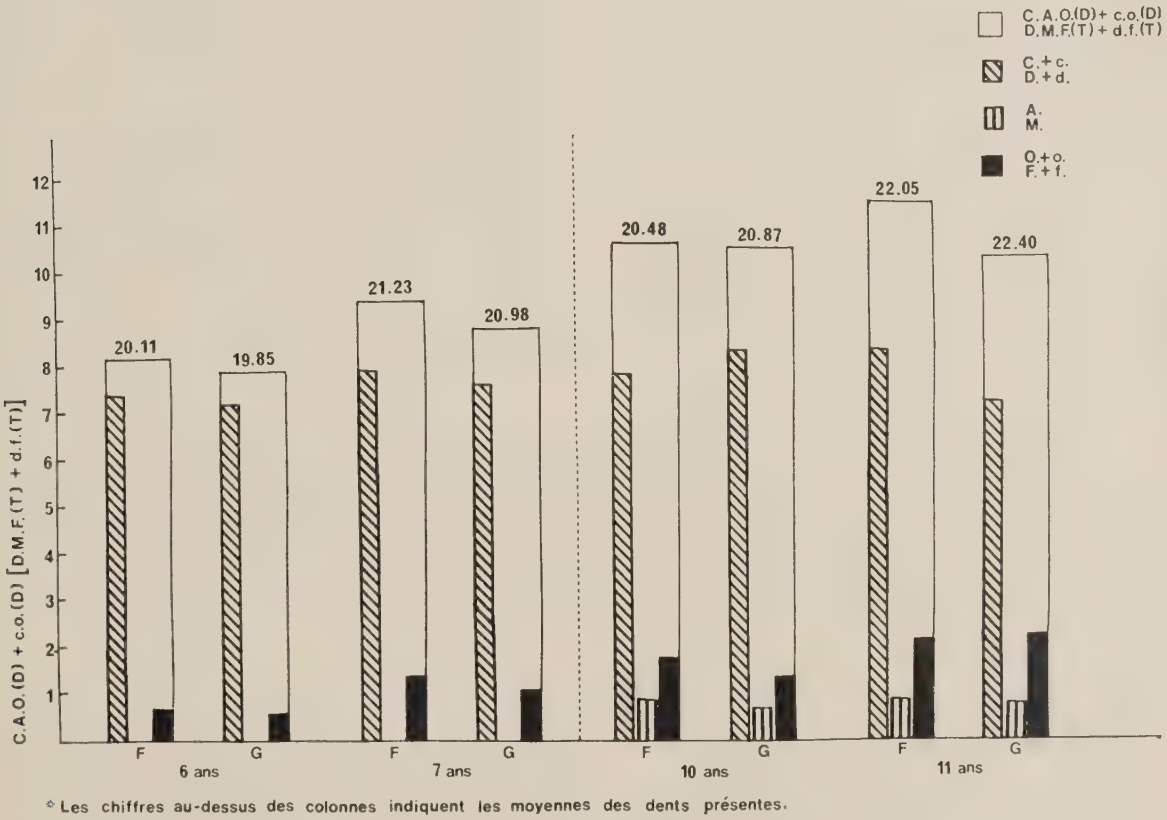
Les données ont subi une codification spéciale, élaborée par l'équipe du Centre (Tableaux 1-4). Ces données ont été transférées sur des cartes perforées qui ont été traitées ensuite par l'ordinateur Control Data 6400 du Centre de calcul de l'Université de Montréal, pour établir:

1. Un tableau descriptif de base. Nous avons choisi l'expression en paramètres statistiques courants pour chaque fonction et pour chaque série d'observations. Comme il s'agit d'une étude semi-longitudinale, la prévalence momentanée peut être comprise comme celle des enfants soit de six et 10 ans, soit de sept et 11 ans (il s'agit de deux populations semblables subissant un examen multiple étalé).

2. La comparaison avec d'autres études au Canada. Nous avons utilisé les méthodes graphiques courantes (histogrammes), et vu la complexité différente des données pubiées, nous avons pu tester les différences éventuelles des moyennes des différentes fonctions en les comparant avec les limites de confiance, dressées autour de nos moyennes.[11, 12]

3. La comparaison avec les données françaises.

4. La comparaison avec d'autres données internationales. Cette opération ne peut être faite que par la voie comparative graphique. Dans le contexte de l'étude comparative de Toth[13] nous avons inclus nos données et les données françaises.




* Les chiffres au-dessus des colonnes indiquent les moyennes des dents présentes.

Fig 3 Dentition mixte. CAO + co ou DMF + df d'un groupe de garçons et filles de six, sept, 10 et 11 ans.

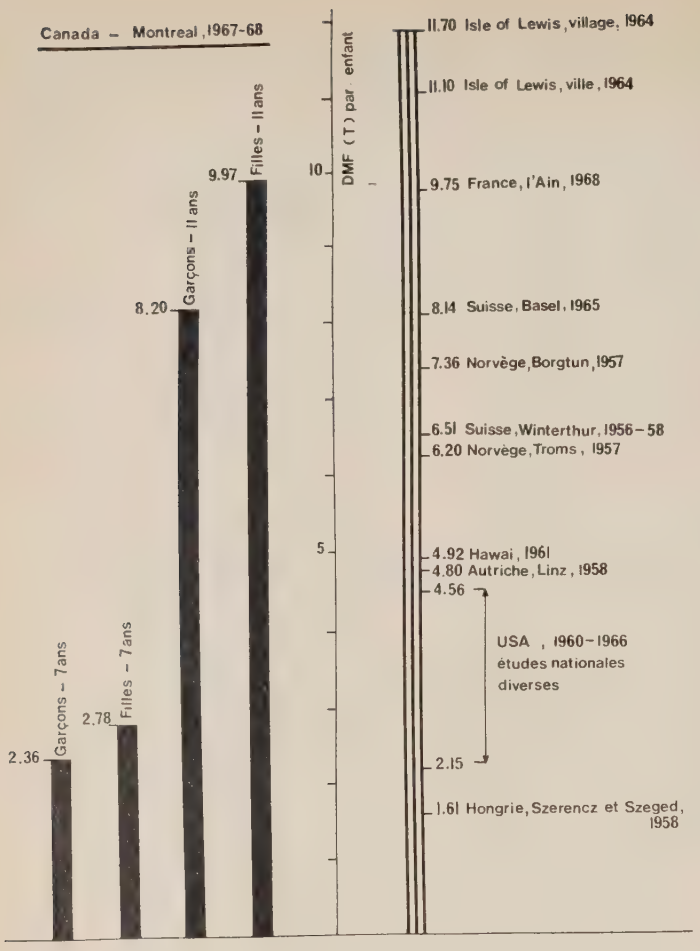



Fig 4 Etat de dentition permanente des enfants canadiens-français de Montréal (1967-8). Comparaison avec d'autres études nationales récentes d'enfants âgés de sept à 14 ans. (Echelle comparative modifiée d'après Toth.[13])

Ces comparaisons présentent plusieurs problèmes comme: l'extrême diversité des études nationales, les âges des enfants qui diffèrent, les données des deux sexes présentés ensemble, les moyennes mixtes et enfin les études transversales qu'il faut comparer avec la nôtre (semi-longitudinale).

Comme indicateurs de l'état de la dentition, nous avons choisi les index conventionnels: le co (df) pour la 1ère dentition (Tableau 1 et Fig 1), le CAO (DMF) pour la 2ème dentition (Tableau 2 et Fig 2) et le co et CAO pour la dentition mixte (Tableau 3 et Fig 3), dans le sens de la standardisation convenue des termes présentés.

## Résultats

Le tableau 4 donne les moyennes comparatives des enfants de Montréal avec les populations semblables de la Colombie-Britannique et de l'Ontario. Nous voyons que nos moyennes pour le CAO et le co sont plus élevées; pour le moment nous ne pouvons qu'analyser les causes possibles du phénomène décrit. La comparaison des moyennes des autres populations canadiennes avec les limites de confiance de nos moyennes complètent la description.

Nous n'avons pu comparer nos enfants avec des enfants de même âge et du même fond génétique (enfants français) parce que nous n'avons à notre disposition que les données des enfants de 13-14 ans (2ème dentition), provenant d'un département agricole. Nous nous sommes limités à inclure, sous forme d'histogrammes, l'état de la dentition de nos enfants en comparaison avec celui des enfants français dans le contexte de la situation internationale (Fig 4).

Nous constatons, en nous référant à l'étude de Toth, que les données qui proviennent des diverses études sont difficilement comparables sous une autre forme que celle d'histogrammes sommaires. Nous avons donc situé nos enfants parmi les études (internationales) présentées dans la synthèse de Toth et introduit les données françaises.

## Discussion

Nous constatons que l'état de la dentition de nos enfants mérite les plus grands égards au niveau de la première dentition, de la deuxième dentition et de la dentition mixte. Il faut prendre en considération qu'il s'agit d'un tableau de départ, dressé sur une population où l'éducation dentaire et les examens périodiques et systématiques des populations jeunes débutent, et dans un milieu où les eaux communautaires ne sont pas fluorées.

Il faut prendre en considération aussi que nous comparons, un échantillon relativement réduit, puisque nos données proviennent d'une étude semi-longitudinale, avec des données provenant d'études transversales plus extensives.

L'échantillonnage de nos enfants est affecté d'un autre côté par la stricte nécessité du volontariat dans le sous-échantillonnage final. Dans de telles études il est malheureusement connu que les cas graves ne se présentent parfois pas pour des raisons personnelles. Nous avons par contre poussé au maximum la standardisation et la minutie de l'examen clinique en essayant d'éviter au maximum les erreurs personnelles éventuelles.

Nous pouvons facilement expliquer pourquoi nos données sont plus élevées que celles de la Colombie-Britannique ou de l'Ontario. Les populations ne sont pas exactement les mêmes; par exemple, nous comparons une population métropolitaine avec d'autres villes où certaines conditions importantes sont les mêmes (eaux non-fluorées chez toutes les populations suivies à l'époque de l'étude) ou différentes (programmes de santé dentaire intensifs établis depuis 10 ans, hygiène buccale probablement meilleure).

Notre étude actuelle suit également certains facteurs déterminants ou conditionnels de l'état de la dentition de nos enfants (consommation alimentaire, hygiène buccale, intensité des soins dentaires). Ces facteurs seront successivement mis en évidence dans des publications futures.

La différence entre les âges de nos enfants et ceux des enfants français dans l'étude de Papillard ne permet pas, pour le moment, d'établir une comparaison et un commentaire détaillé. La pondération de notre population avec celle du même fond génétique français et une population ayant des conditions de vie semblables (continent nord-américain) serait donc précoce au stage actuel de notre enquête.

Les paramètres de l'état de la dentition de nos enfants, aussi élevés dans le contexte international, sont difficiles à discuter à cause de la diversité extrême de

la méthodologie des différentes études et pour les raisons déjà mentionnées.

## Conclusion

Nous pouvons considérer l'état de la dentition de nos enfants comme préoccupant et inquiétant.

Cet état exige une évaluation simultanée et approfondie des différents facteurs déterminants et conditionnels. Ces facteurs seront mis en évidence dans des études que nous sommes actuellement en voie de parachever. Nous ne pouvons signaler à ce moment, que la gravité de l'état à chaque âge suivi (six à 11 ans dans notre échantillon), au niveau de la première dentition, de la deuxième dentition et de la dentition mixte. Cet état semble plus grave encore chez les filles. Les données complètes à la fin de notre étude semi-longitudinale donneront un tableau plus précis des phénomènes observés, et une explication plus complète pourra être offerte concernant les facteurs importants qui agissent sur l'état de la dentition de nos enfants.

Si nous séparons les divers composés de certains paramètres suivis (dents cariées, dents obturées, dents manquantes), nous constatons que le caractère quantitatif de nos CAO, ceo et co est représenté surtout par le taux de la carie, plutôt que par le taux des obturations qui représentent l'intensité des soins.

En comparant l'état de la dentition de nos enfants avec celui des enfants d'autres provinces du Canada (Colombie-Britannique et Ontario), nous constatons qu'il est de beaucoup inférieur à celui des provinces où des programmes publics d'éducation et de prévention sont en vigueur. Les causes exactes restent à expliquer. Quand nous aurons à notre disposition des données plus complètes sur la dentition de nos enfants et sur les facteurs agissants suivis, il sera peut être possible d'apporter quelques éclaircissements.

Les conditions de la santé dentaire de notre population devraient être améliorées. Il y a plusieurs moyens de ralentir et même d'arrêter un tel état de choses. Le plus direct serait un programme d'éducation et de prévention très intensif au niveau du grand public. Un tel programme a déjà donné, ailleurs, des résultats très encourageants.

Ce travail fut subventionné par un octroi (604-7-563) du Ministère de la Santé Nationale et du Bien-Etre Social.

Les auteurs voudraient remercier sincèrement les enfants qui ont participé à cette étude, les directeurs d'écoles, les autorités administratives et médicales de la Commission des écoles catholiques de Montréal pour leur bonne collaboration sans laquelle cette étude serait impossible. Remerciements aussi au Docteur J.-P. Lussier, doyen de la Faculté de chirurgie dentaire de l'Université de Montréal, pour ses critiques constructives du manuscrit.

**Tableau 4** **Comparaison de trois différentes populations canadiennes. Index CAO (DMF): prévalence de caries dentaires. (Villes au-dessus de 100,000 habitants)**

| | co ou ceo (df or def) | CAO (DMF) | co + CAO (df + DMF) |
|---|---|---|---|
| 7 ans: garçons et filles | | | |
| Montréal (N=186) | 6.51* | 2.56* | 9.08* |
| Ontario[9] (N=198) | 5.89 | 1.12 | 7.08 |
| Vancouver (1968)[8] (N=300) | 5.63 | 1.15 | 6.78 |
| 11 ans: garçons et filles | | | |
| Montréal (N=190) | 1.79* | 9.06* | 10.86* |
| Ontario[9] (N=196) | 1.64 | 4.25 | 5.89 |
| Vancouver (1968)[8] (N=277) | 2.01 | 4.15 | 6.16 |

*Moyennes pondérées

Les enfants de l'Ontario et de la Colombie-Britannique, à l'encontre de ceux du Centre de recherche sur la croissance (Montréal), ont été exposés à un programme intensif d'éducation et de santé dentaire publique depuis 10 ans.

Les enfants de l'échantillon de Montréal accusent un retard au point de vue de la croissance et du développement dentaire; l'arrivée des dents en bouche est également plus lente.

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# Effects of tooth extraction on arch dimensions of French Canadian children

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*To measure the effect of tooth extractions on dental arch dimensions, the authors examined 1,352 dental casts of French Canadian boys and girls aged six, seven, 10 and 11 years. The preliminary results, though not statistically significant, indicate that extractions induced the expected decrease in arch dimensions, particularly at the level of the first permanent maxillary molars.*

*Cette étude préliminaire a pour but d'évaluer l'effet des extractions prématurées sur les dimensions des arcades dentaires. Les auteurs ont examiné 1,352 modèles d'étude appartenant à des garçons et filles canadiens français de six, sept, 10 et 11 ans. L'échantillon a été subdivisé en deux groupes avec extraction et sans extraction. Les critères pour classer une bouche "avec extraction" étaient, soit l'absence de la première molaire permanente (vérifiée sur une radiographie panoramique), soit l'absence, dans la bouche d'un enfant de six ou sept ans, de la première ou de la deuxième molaire temporaire. Pour mesurer la largeur de l'arcade sur les modèles d'étude, on s'est servi de la pointe des cuspides tel que décrit par Moorrees. La longueur de l'arcade dentaire a été déterminée comme étant la distance entre la tangente à la surface labiale des incisives et la ligne passant par la surface distale des deux molaires temporaires ou leurs successeurs permanents. Les résultats préliminaires démontrent que les extractions prématurées ont une certaine influence dans la diminution des dimensions de l'arcade dentaire, surtout au niveau de la première molaire permanente. Mais cette tendance n'a pas été significative statistiquement.*

This article describes the preliminary results of a longitudinal study of the effects of tooth extractions on dental arch dimensions of French Canadian children.

## Review of literature

Dental arch measurements have been studied for many years. One of the first to investigate changes of arch dimension was Sir Frank Colyer[1] who, in 1920, measured dental arches in two girls and a boy from the age of three onward. He noted a rapid increase in intercuspid distance between the ages of six and eight, a period that coincides with eruption of the permanent incisors. Others have likewise observed widening of the arch during eruption of the permanent successors.[2, 3] Recent studies, utilizing more data, better statistical analysis, and more refined techniques, have culminated in similar conclusions.[4, 5] An extensive survey of many of the studies reported in the past 50 years has been documented by Moorrees.[6]

Research on the effects of extraction on dental arch dimension has been less extensive. Investigators seem to overlook that the extraction of primary teeth may have a direct effect on arch dimension. Moorrees,[6] for example, did not consider the extraction of the primary molars as a criterion for excluding subjects from his sample. Seipel[7] examined arch dimensions after tooth extractions but reported no significant change in transverse measurements at the level of the first and second primary molars. Similar results were reported by Foster and Wylie[8] who found no adverse effect on mandibular intercuspid width after premature removal of the mandibular cuspids.

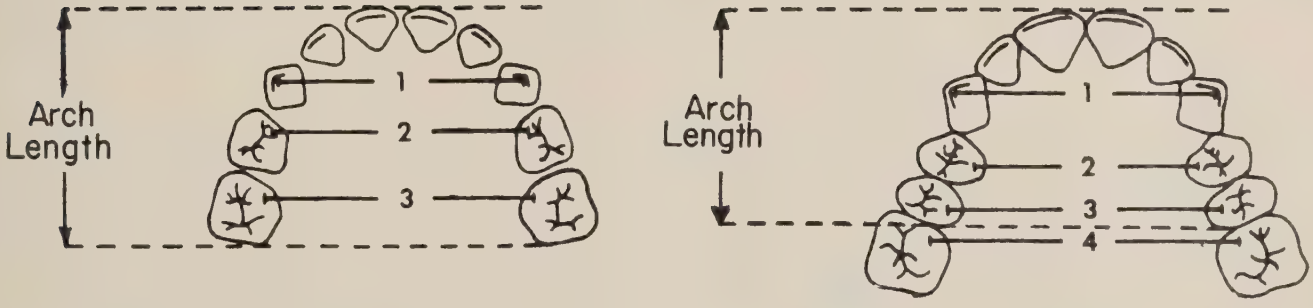
Expanding on Steadman's[9] study of orthodontic patients, Walter[10] assessed the effect of permanent tooth extraction and found no difference in the intercuspid distance of bicuspid extraction and non-extraction cases. Effects in the first permanent molar region were quite different, however. Here 72 per cent of the non-extraction cases showed an increase in intermolar distance, while 70 per cent of the extraction cases experienced a decrease.

In recent years dental age has superseded chronological age as an index in studies of dental arch dimension. Moorrees and Reed[11] scaled their measurements against dental age. They concluded that, when using averages, dental age is a more representative index than chronological age.

**Age distribution and number of subjects examined at the University of Montreal Growth Centre from January 1967 to December 1969** **Table 1**

| | Jan-Dec 1967 | | | Jan-Dec 1968 | | | Jan-Dec 1969 | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Age | Boys | Girls | Total | Boys | Girls | Total | Boys | Girls | Total | Combined |
| 4 | | | | 2 | 2 | 4 | | | | 4 |
| 5 | | | | | 1 | 1 | | 2 | 2 | 3 |
| 6 | 109 | 101 | 210 | | | | | | | 210 |
| 6 | | | | 2 | 5 | 7 | 3 | 5 (1) | 8 (1) | 15 (1) |
| 7 | | | | 99 | 87 | 186 | | | | 186 |
| 7 | 16 | 5 | 21 | 3 | 1 | 4 | 1 (2) | 4 | 5 (2) | 30 (2) |
| 8 | | | | | | | 88 (21) | 80 (37) | 168 (58) | 168 (58) |
| 8 | | | | 22 | 15 | 37 | 4 | 1 | 5 | 42 |
| 9 | 2 | 1 | 3 | 13 | 11 | 24 | 18 (5) | 10 (6) | 28 (11) | 55 (11) |
| 10 | 109 | 112 | 221 | | | | | | | 221 |
| 10 | | | | 7 | 7 | 14 | 9 | 13 | 22 | 36 |
| 11 | | | | 99 | 95 | 194 | | | | 194 |
| 11 | | 1 | 1 | 3 | 4 | 7 | 8 (2) | 9 | 17 (2) | 25 (2) |
| 12 | | | | | | | 89 | 80 (1) | 169 (1) | 169 (1) |
| 12 | | | | 4 | 3 | 7 | | 3 | 3 | 10 |
| 13 | | | | 3 | 3 | 6 | 7 | 3 | 10 | 16 |
| 14 | | | | 5 | | 5 | 2 | 2 | 4 | 9 |
| 15 | | | | 1 | | 1 | 2 | | 2 | 3 |
| Total | | | 456 | | | 497 | | | 443 (75) | 1,396 (75) |
| Grand total | | | | | | | | | | 1,471 |

Numbers in parentheses are new recruits added in 1969.




PRIMARY DENTITION

1= C-C

2= $dP_1 - dP_1$ or $P_1 - P_1$

PERMANENT DENTITION

3= $dP_2 - dP_2$ or $P_2 - P_2$

4= $M_1 - M_1$

Fig 1 Diagrams showing the reference points used for measuring arch length and arch breadth of the primary and permanent dentitions.

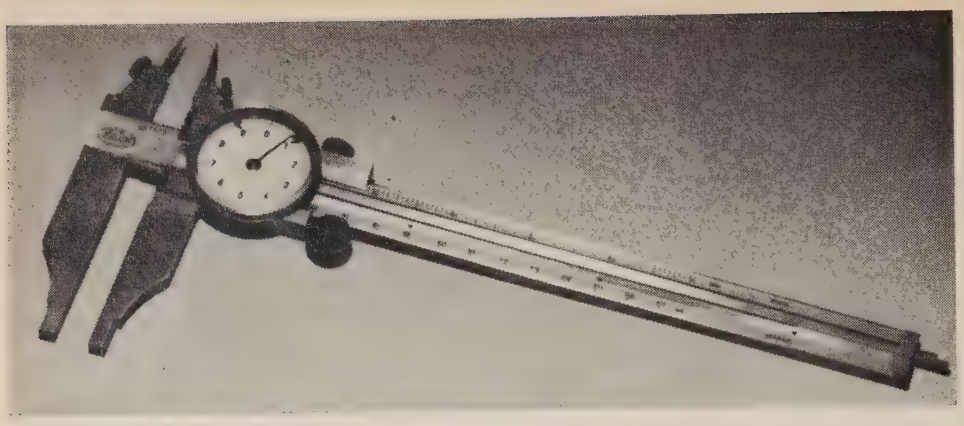


Fig 2 Helios needle-point dial caliper (Model RTUR 15068C) used for measuring dental arch dimensions.

## Material and methods

The present mixed longitudinal study began at the University of Montreal Growth Centre in 1967. Our sample, selected from schools of the Montreal Catholic School Commission, consisted of children with a heritage of three generations of French Canadian parentage. To ascertain environmental effects the sample was subdivided into three socio-economic groups according to the profession, income and education of the parents.

Originally, a total of 431 children was chosen; 210 (109 boys and 101 girls) aged six and 221 (101 boys and 112 girls) aged ten. Siblings were subsequently added to the sample and by the end of December 1969 a total of 1,471 boys and girls had been examined (Table 1).

For this preliminary report, 1,352 casts were measured. The siblings were excluded as were the children that had any orthodontic treatment. The residual discrepancy between the sample size and the actual number of casts examined is explained by a lack of cooperation by some patients, the loss of some patients from the first to the second year, and the inadequacy of some casts for precise measurement.

Fig 3 Panoramic radiograph of a six year old girl demonstrating the premature extraction of the lower primary molars and upper left primary molars.

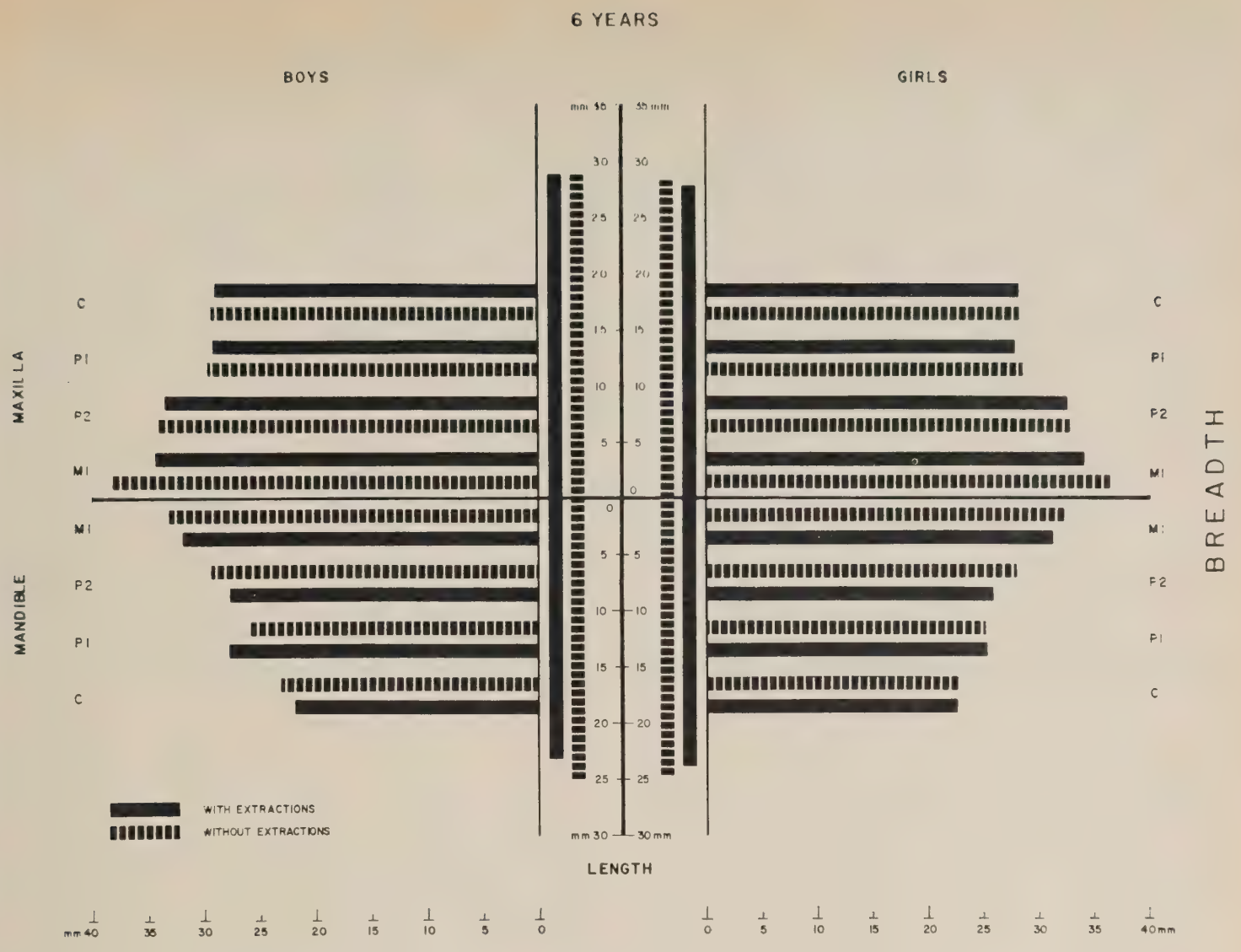



Fig 4 Comparative dimensions of arch length and arch breadth of six year old French Canadian boys and girls.

The following tests were used for statistical comparisons between the French Canadian and American (Moorrees) populations, and between the extraction and non-extraction cases: the Student "t" test in cases where both samples contained more than 20 subjects, and the Mann-Whitney test in all other cases.

## Technique

Irreversible hydrocolloid impressions of the maxillary and mandibular dental arches were taken of each child by the examining dentist. The models were cast in dental stone-plaster. These casts were then measured using the following reference points:

Arch breadth was measured between (1) the crown tips of the cuspids, (2) the mesiolingual cusps of the first and second primary molars, (3) the mesiolingual cusps of the first permanent molars, and (4) the lingual cusp tips of the bicuspids. If a cusp tip was worn down, the centre of the facet was used.

Arch length was assessed as the perpendicular distance between lines tangent to the labial surfaces of the central incisors and the distal portions of the second primary molars or their permanent successors (Fig 1).

All of the measurements were made with a Helios needle-point dial caliper (Model RTUR 15068C) with an accuracy of 1/20mm (Fig 2). The results were put on coding forms; then cards were punched and read into the computer.

The sample was divided into extraction and non-extraction sub-groups to ascertain the effect of premature extractions. All cases in which the first permanent molars were absent, as verified on panoramic radiographs, were considered as extraction cases. Also included were those cases where the first or second primary molars were missing at the ages of six or seven (Fig 3).

**Comparison of arch dimensions in six year old French Canadian and American children (Moorrees' sample results in parentheses)**

**Table 2**

| Jaw | Dimension | No | Mean (mm) | SD (mm) | Range (mm) |
|---|---|---|---|---|---|
| | | | Boys | | |
| Maxilla | Length | 75 (29) | 28.89 (29.26) | 1.74 (1.60) | 24.7 – 35.0 (25.3 – 32.3) |
| | C – C | 80 (43) | 29.28 (29.46) | 2.05 (1.96) | 23.0 – 33.6 (25.6 – 33.5) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 77 (39) | 29.55 (30.01) | 2.28 (2.21) | 22.2 – 34.4 (25.7 – 34.5) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 77 (40) | 33.93 (34.73) | 2.50 (2.18) | 25.5 – 39.1 (30.0 – 38.5) |
| | $M_1 - M_1$ | 18 (9) | 37.26 (36.69) | 2.39 (2.86) | 33.2 – 41.0 (32.5 – 40.5) |
| Mandible | Length | 68 (20) | 24.80 (25.65) | 1.90 (1.29) | 17.8 – 28.8 (19.3 – 30.5) |
| | C – C | 74 (39) | 22.89 (23.10) | 1.79 (1.76) | 19.0 – 27.4 (20.0 – 28.4) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 62 (34) | 26.05 (25.73) | 1.68 (2.28) | 22.2 – 29.8 (21.0 – 31.8) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 63 (33) | 29.27 (29.28) | 1.92 (1.89) | 24.9 – 33.2 (26.3 – 33.5) |
| | $M_1 - M_1$ | 20 (12) | 32.82 (33.06) | 1.74 (2.39) | 29.4 – 36.3 (29.7 – 36.4) |
| | | | Girls | | |
| Maxilla | Length | 67 (34) | 28.23 (28.47) | 2.02 (1.29) | 24.5 – 38.3 (25.2 – 30.8) |
| | C – C | 73 (59) | 28.21 (28.28) | 2.59 (1.62) | 20.1 – 39.7 (24.2 – 32.6) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 67 (57) | 28.35 (28.73) | 2.25 (2.04) | 23.5 – 33.9 (23.1 – 34.3) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 70 (57) | 32.65 (33.23) | 2.44 (2.09) | 26.7 – 37.8 (28.5 – 41.3) |
| | $M_1 - M_1$ | 14 (18) | 35.73 (37.32) | 2.45 (2.21) | 30.6 – 40.5 (31.0 – 41.0) |
| Mandible | Length | 60 (31) | 24.51 (24.71) | 1.62 (1.50) | 21.2 – 28.6 (21.0 – 27.5) |
| | C – C | 77 (57) | 22.63 (22.88) | 2.25 (1.52) | 17.8 – 32.7 (19.5 – 26.1) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 56 (52) | 25.12 (25.46) | 1.74 (1.75) | 22.1 – 29.8 (21.5 – 28.6) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 54 (46) | 27.90 (29.15) | 2.39 (1.76) | 17.1 – 31.9 (25.5 – 33.2) |
| | $M_1 - M_1$ | 25 (22) | 32.09 (33.31) | 2.50 (2.28) | 26.5 – 37.4 (28.5 – 36.8) |

## Results

Our preliminary results for arch dimensions of boys and girls aged six, seven, 10 and 11 years are shown in Tables 2-5. The number of subjects, the mean, the standard deviation and range are compared to those of Moorrees. Since the two studies employed similar techniques, we believe such a comparison is justified.

Although the difference is not statistically significant, the French Canadian sample shows lower values in nearly every dimension. There are no significant differences between the three social classes.

Figure 4 compares arch dimension in six year old children of the extraction and non-extraction subgroups. The largest differences in arch breadth were found at the upper first permanent molar.

The mean value for the non-extraction cases in all age groups, boys and girls, is lower than that of the extraction cases. But in seven and 10 year old boys the difference is statistically significant only at the $P<0.1$ level. There is a significant difference in six year old boys at the $P<0.01$ level, but this may be due to the small sample size — only 18 cases. In all age groups, the girls had narrower arches regardless of extractions (Fig 5).

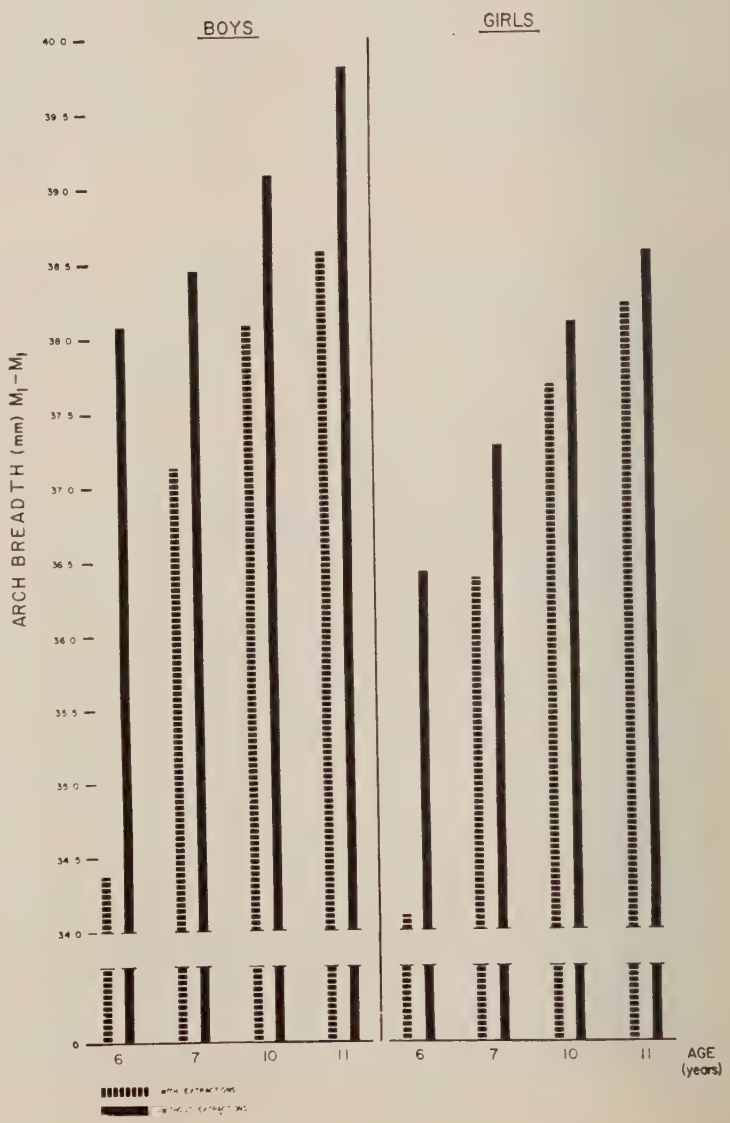



Fig 5 Comparison of values between extraction and non-extraction cases at the level of the upper permanent first molar.

**Comparison of arch dimensions in seven year old French Canadian and American children (Moorrees' sample results in parentheses)** Table 3

| | Dimension | No | Mean (mm) | SD (mm) | Range (mm) |
|---|---|---|---|---|---|
| | | | Boys | | |
| Maxilla | Length | 72 (33) | 28.80 (29.11) | 2.39 (1.93) | 22.2 – 35.5 (25.5 – 33.0) |
| | C – C | 80 (48) | 30.07 (30.72) | 2.42 (2.04) | 23.6 – 37.1 (27.5 – 35.8) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 75 (49) | 29.51 (30.70) | 2.17 (1.92) | 22.7 – 34.4 (27.5 – 34.6) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 71 (46) | 33.67 (35.38) | 3.04 (2.21) | 24.7 – 42.5 (30.0 – 40.0) |
| | $M_1 - M_1$ | 65 (36) | 38.03 (39.18) | 2.56 (2.54) | 32.3 – 47.2 (34.6 – 44.0) |
| Mandible | Length | 81 (30) | 25.30 (25.49) | 1.92 (1.77) | 18.4 – 30.3 (22.5 – 30.5) |
| | C – C | 83 (51) | 24.22 (24.65) | 2.06 (2.37) | 18.5 – 29.1 (19.0 – 28.9) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 58 (38) | 26.47 (26.63) | 2.07 (2.19) | 22.3 – 31.4 (21.0 – 32.9) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 58 (35) | 29.15 (29.93) | 2.22 (1.96) | 24.4 – 36.4 (27.2 – 34.5) |
| | $M_1 - M_1$ | 66 (44) | 33.43 (33.95) | 2.50 (2.26) | 27.8 – 40.4 (29.5 – 37.2) |
| | | | Girls | | |
| Maxilla | Length | 63 (33) | 27.81 (28.50) | 2.03 (1.65) | 22.7 – 33.1 (23.9 – 33.2) |
| | C – C | 68 (58) | 29.31 (29.36) | 2.29 (2.28) | 22.6 – 34.5 (25.0 – 33.9) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 56 (52) | 28.77 (29.15) | 2.25 (1.92) | 23.9 – 34.1 (25.0 – 34.3) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 60 (55) | 32.78 (33.61) | 2.39 (2.50) | 27.3 – 38.5 (28.5 – 38.2) |
| | $M_1 - M_1$ | 59 (45) | 36.79 (37.89) | 2.87 (2.44) | 29.5 – 42.1 (32.9 – 41.6) |
| Mandible | Length | 71 (31) | 24.17 (24.70) | 1.56 (1.83) | 20.9 – 28.4 (21.0 – 28.9) |
| | C – C | 71 (53) | 23.61 (23.84) | 2.10 (1.79) | 18.8 – 30.2 (19.5 – 28.0) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 50 (43) | 25.32 (25.91) | 1.90 (1.50) | 22.2 – 30.4 (22.5 – 29.0) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 42 (43) | 28.06 (29.40) | 1.96 (2.04) | 24.2 – 32.0 (24.5 – 33.4) |
| | $M_1 - M_1$ | 61 (50) | 32.30 (33.61) | 1.97 (1.95) | 27.1 – 36.6 (28.5 – 37.2) |

## Summary and conclusions

This preliminary study has established dental arch dimensions for French Canadian children aged six, seven, 10 and 11 years. Our results suggest that:

1. French Canadian children have smaller values at each dimension, compared to Moorrees' sample.

2. Arch dimensions are not significantly affected by premature extraction of the primary cuspids and molars or the first permanent molars.

3. There is nevertheless a tendency toward decreased arch dimension following premature extraction of the aforementioned teeth, especially at the level of the upper first permanent molar.

**Comparison of arch dimensions in 10 year old French Canadian and American children (Moorrees' sample results in parentheses)** Table 4

| | Dimension | No | Mean (mm) | SD (mm) | Range (mm) |
|---|---|---|---|---|---|
| | | | Boys | | |
| Maxilla | Length | 87 (24) | 29.93 (30.06) | 2.81 (2.47) | 22.2 – 37.0 (26.0 – 37.5) |
| | C – C | 36 (23) | 32.10 (32.32) | 2.63 (1.69) | 23.8 – 36.9 (28.7 – 35.0) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 36 (27) | 30.56 (31.80) | 2.36 (2.47) | 26.6 – 35.8 (25.9 – 35.8) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 43 (27) | 35.31 (35.58) | 2.11 (2.82) | 30.1 – 39.9 (29.6 – 39.4) |
| | $M_1 - M_1$ | 87 (32) | 38.95 (40.07) | 2.70 (3.10) | 30.0 – 45.1 (34.0 – 44.5) |
| Mandible | Length | 74 (19) | 25.29 (25.65) | 2.20 (1.88) | 20.1 – 30.4 (22.1 – 31.5) |
| | C – C | 31 (27) | 26.52 (26.24) | 2.22 (1.82) | 23.4 – 32.5 (22.3 – 29.0) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 33 (17) | 27.47 (28.32) | 2.07 (2.61) | 23.5 – 33.2 (24.0 – 33.3) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 26 (18) | 30.65 (30.37) | 2.47 (2.40) | 24.1 – 36.2 (27.5 – 35.0) |
| | $M_1 - M_1$ | 69 (32) | 33.64 (33.79) | 2.81 (2.82) | 26.4 – 40.8 (28.9 – 39.9) |
| | | | Girls | | |
| Maxilla | Length | 88 (20) | 28.90 (29.10) | 2.81 (2.64) | 22.0 – 37.7 (21.2 – 33.0) |
| | C – C | 26 (21) | 31.20 (30.27) | 2.24 (1.68) | 24.7 – 34.7 (26.2 – 33.7) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 43 (20) | 29.69 (31.13) | 2.67 (3.37) | 23.7 – 35.2 (24.5 – 39.6) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 38 (21) | 34.55 (34.01) | 2.88 (3.12) | 28.8 – 39.8 (27.0 – 42.8) |
| | $M_1 - M_1$ | 85 (33) | 38.00 (39.27) | 3.06 (2.57) | 27.6 – 45.5 (32.5 – 44.7) |
| Mandible | Length | 69 (18) | 24.74 (24.09) | 2.91 (2.24) | 19.2 – 34.9 (20.7 – 28.9) |
| | C – C | 40 (24) | 25.75 (24.63) | 1.82 (1.24) | 23.2 – 32.5 (22.3 – 27.0) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 25 (15) | 28.10 (26.57) | 1.76 (1.28) | 24.3 – 31.2 (24.0 – 28.5) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 26 (14) | 30.47 (31.03) | 2.29 (2.09) | 26.6 – 34.4 (26.5 – 33.0) |
| | $M_1 - M_1$ | 66 (29) | 33.22 (33.90) | 2.55 (2.31) | 26.0 – 41.0 (29.5 – 38.2) |

**Comparison of arch dimensions in 11 year old French Canadian and American children (Moorrees' sample results in parentheses)**

**Table 5**

| | Dimension | No | Mean (mm) | SD (mm) | Range (mm) |
|---|---|---|---|---|---|
| | | | Boys | | |
| Maxilla | Length | 78 (18) | 30.36 (29.86) | 3.31 (2.66) | 21.5 – 39.9 (26.0 – 38.0) |
| | C – C | 36 (18) | 33.18 (32.78) | 2.38 (1.84) | 28.1 – 38.6 (28.2 – 35.0) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 54 (19) | 29.91 (31.01) | 2.80 (2.29) | 22.6 – 36.6 (27.0 – 34.1) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 39 (20) | 34.92 (36.58) | 2.34 (2.73) | 30.8 – 40.4 (29.0 – 39.5) |
| | $M_1 - M_1$ | 73 (24) | 39.56 (40.78) | 2.49 (2.87) | 31.3 – 44.6 (35.9 – 44.5) |
| Mandible | Length | 64 (14) | 25.24 (25.29) | 2.41 (2.01) | 19.2 – 31.5 (21.9 – 31.0) |
| | C – C | 58 (19) | 26.31 (25.81) | 1.79 (1.53) | 22.8 – 33.1 (21.9 – 28.1) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 37 (13) | 27.79 (27.59) | 1.92 (3.18) | 23.9 – 31.5 (22.8 – 33.6) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 31 (16) | 30.75 (31.46) | 2.68 (2.25) | 22.8 – 35.3 (27.7 – 34.8) |
| | $M_1 - M_1$ | 60 (22) | 33.41 (34.25) | 2.56 (2.81) | 27.7 – 40.3 (29.8 – 38.3) |
| | | | Girls | | |
| Maxilla | Length | 75 (18) | 28.66 (28.80) | 2.71 (2.73) | 21.6 – 35.9 (21.2 – 32.0) |
| | C – C | 46 (15) | 31.65 (31.90) | 2.02 (1.57) | 25.5 – 35.1 (30.0 – 34.7) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 53 (18) | 29.07 (29.94) | 2.73 (2.53) | 23.5 – 34.4 (25.4 – 35.3) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 38 (15) | 34.12 (34.94) | 2.64 (2.87) | 29.4 – 39.0 (31.5 – 42.3) |
| | $M_1 - M_1$ | 69 (23) | 38.47 (39.14) | 2.97 (2.44) | 33.0 – 46.5 (35.5 – 44.7) |
| Mandible | Length | 65 (14) | 24.69 (23.81) | 2.81 (2.07) | 19.0 – 35.0 (21.1 – 27.0) |
| | C – C | 56 (20) | 25.03 (24.39) | 1.61 (1.03) | 21.9 – 29.0 (22.6 – 26.3) |
| | $P_1 - P_1$ or $dP_1 - dP_1$ | 43 (14) | 27.41 (26.89) | 1.95 (1.14) | 21.6 – 30.6 (24.4 – 28.8) |
| | $P_2 - P_2$ or $dP_2 - dP_2$ | 27 (11) | 30.61 (31.41) | 2.86 (1.43) | 25.6 – 38.0 (28.5 – 33.2) |
| | $M_1 - M_1$ | 58 (20) | 32.62 (33.82) | 2.96 (2.41) | 25.6 – 41.5 (29.0 – 38.2) |

A dental age index for French Canadian children is now being established at the Growth Centre. Upon completion of the studies in all age groups (six to 14 years of age), we will be able to scale our present values against dental age. The extraction cases are also being subdivided into smaller groups, according to the site of extraction.

This study was assisted by Public Health Research Grant Project No 604-7-563 of the National Health Grants Program.

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# One-stage maxillary osteotomy for correction of apertognathia: Report of case

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**San Francisco**

*The author describes an anterior maxillary osteotomy for correction of a Class I malocclusion with severe anterior open bite in this 12 year old patient. He advocates surgical correction of occlusal abnormalities and facial deformities when these cannot be treated by conventional orthodontic methods.*

*L'auteur décrit une ostéotomie antérieure du maxillaire pratiquée chez un enfant de 12 ans pour corriger une malocclusion Classe I avec une grave béance antérieure. Il recommande la correction chirurgicale des anomalies occlusales et des déformations faciales lorsque les méthodes orthodontiques conventionnelles ne peuvent être employées.*

Refined surgical techniques and improved knowledge of bone behaviour have advanced the science of surgical orthodontics in the last few years.[1-4] These procedures deserve consideration when conventional orthodontic treatment cannot provide a reasonable result. This article reports an example in a 12 year old boy who required an anterior maxillary osteotomy.

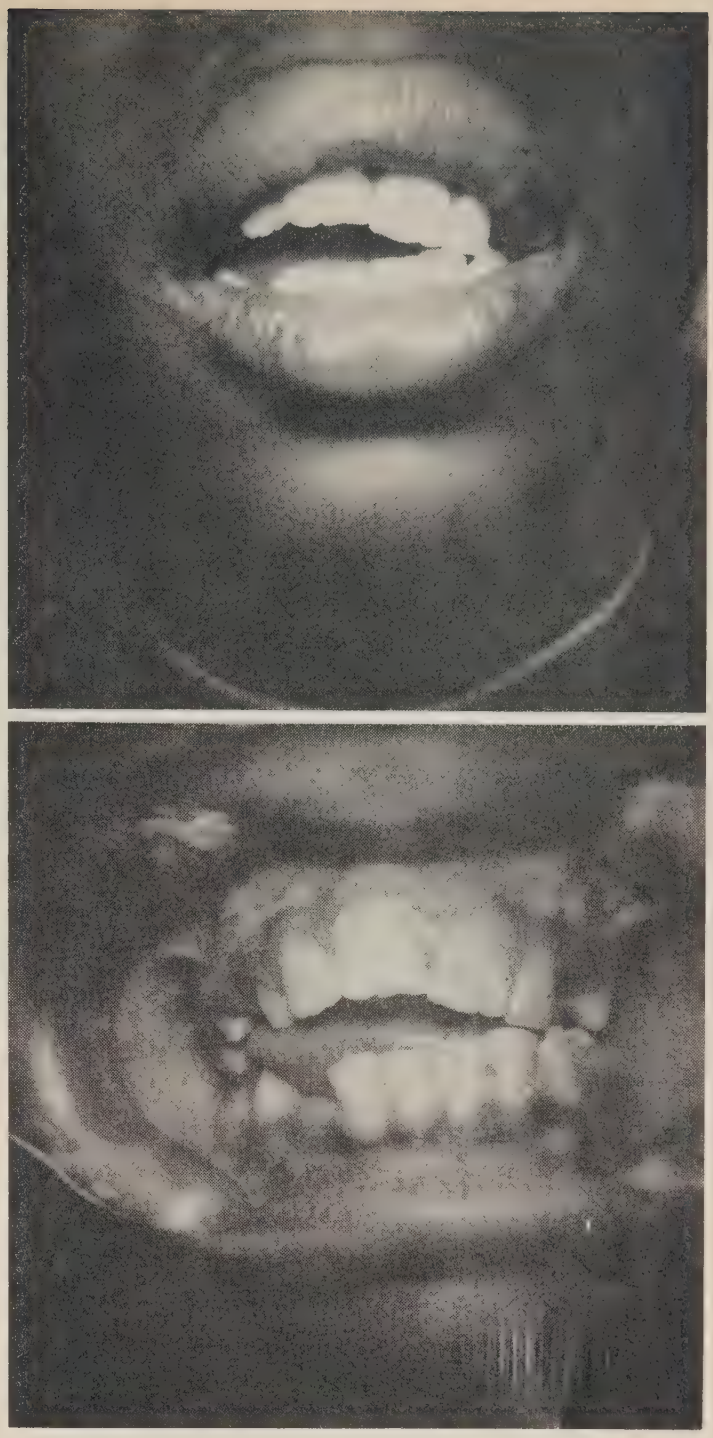

Fig 1 Pre-operative photographs show position of upper anterior teeth in relation to upper lip, severe open bite and anterior displacement of the tongue.

## Case report

The patient was referred by his school principal to the oral surgery clinic of the San Francisco Medical Centre for evaluation and treatment of his anterior open bite. Because of this deformity, he had been a constant target of ridicule and derision by his classmates and he refused to participate in school activities. His indifference to studies was reflected in his grades.

Clinical examination revealed an Angle Class I malocclusion with protruding incisors. Evident also was the anterior open bite with the posterior teeth in contact (Fig 1). Buccolingual relations were normal.

Cephalometric lateral skull radiographs permitted an accurate assessment of the degree of proclination of the upper anterior teeth. The sella-nasion subspinale angle (SNA) was 94 degrees, and the sella-nasion supramentale angle (SNB) was 79 degrees. (S represents the centre of the sella turcica. N is the midpoint on the frontonasal suture. A is the deepest point on the innermost curvature extending from the maxillary anterior nasal spine to the crest of the maxillary alveolar process. SNA is the angle formed by lines joining the points S, N and A. B is the deepest point on the midsagittal plane between infradentale

Fig 2 Models illustrate pre-operative and postoperative occlusion.

and pogonion. SNB is the angle formed by lines joining the points S, N and B.)

The skeletal bone had a normal growth pattern, but the anterior arch contour in the maxilla was deformed as a result of persistent thumbsucking since infancy. Digital pressure had altered the incisal plane of the upper teeth so as to accommodate the thumb. This pressure had been distributed over the lingual surfaces and incisal edges of the teeth. The circum-oral soft tissues appeared sufficiently mobile to compensate for the displacement of the anterior part of the maxillary arch. The lip seal was easily accomplished during swallowing and the tongue was of normal size.

*Preliminary planning*—Osteotomy and ostectomy cuts were made at various sites on study casts. This showed that an osteotomy between the lateral incisor and cuspid on the left side and cuspid and first bicuspid on the right would yield the best result. It would also be necessary to rotate the premaxillary segment downward and back. This would reduce the severe proclination of the upper incisors and also create a space which would have to be packed with bone chips.

The divided premaxillary segment was aligned in its new position and a duplicate cast was made of the corrected position. This was then articulated with a cast of the lower jaw and an acrylic interocclusal splint was constructed (Fig 2).

*Operation* — With the patient under general anaesthesia, a 2½ inch long section was excised from the tenth rib.

Switching to the mouth, I made two vertical 2½ cm incisions in the buccal mucoperiosteum distal to the upper left cuspid and upper right second bicuspid. These two cuts were joined by a third incision carried around the necks of the intervening teeth. Elevating and reflecting the mucoperiosteum upward, I identified the infra-orbital nerve as well as the nasal floor.

Using a 703 fissure bur on a Jordan Day drill, I made a vertical cut between the left lateral incisor and cuspid, extending it upward approximately 3mm above the apices of the teeth. The incision was then carried horizontally about 1mm below the level of the

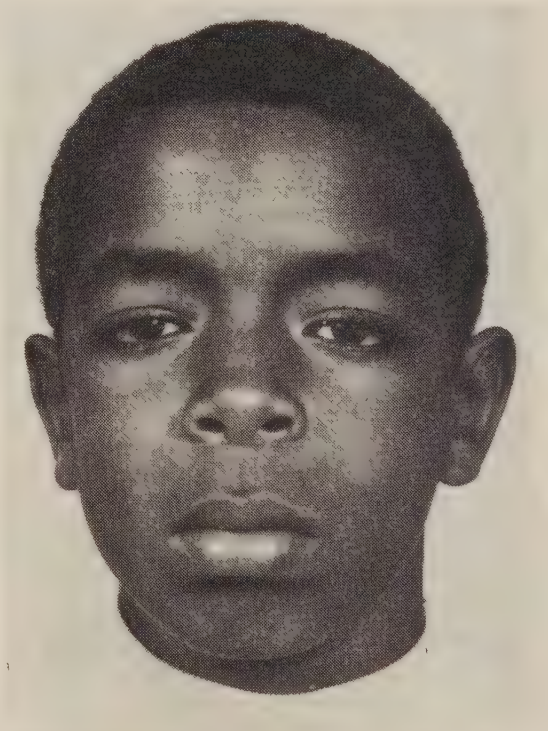

Fig 3 Full face photograph shows restored soft tissue contour following repositioning of premaxillary segment and teeth.

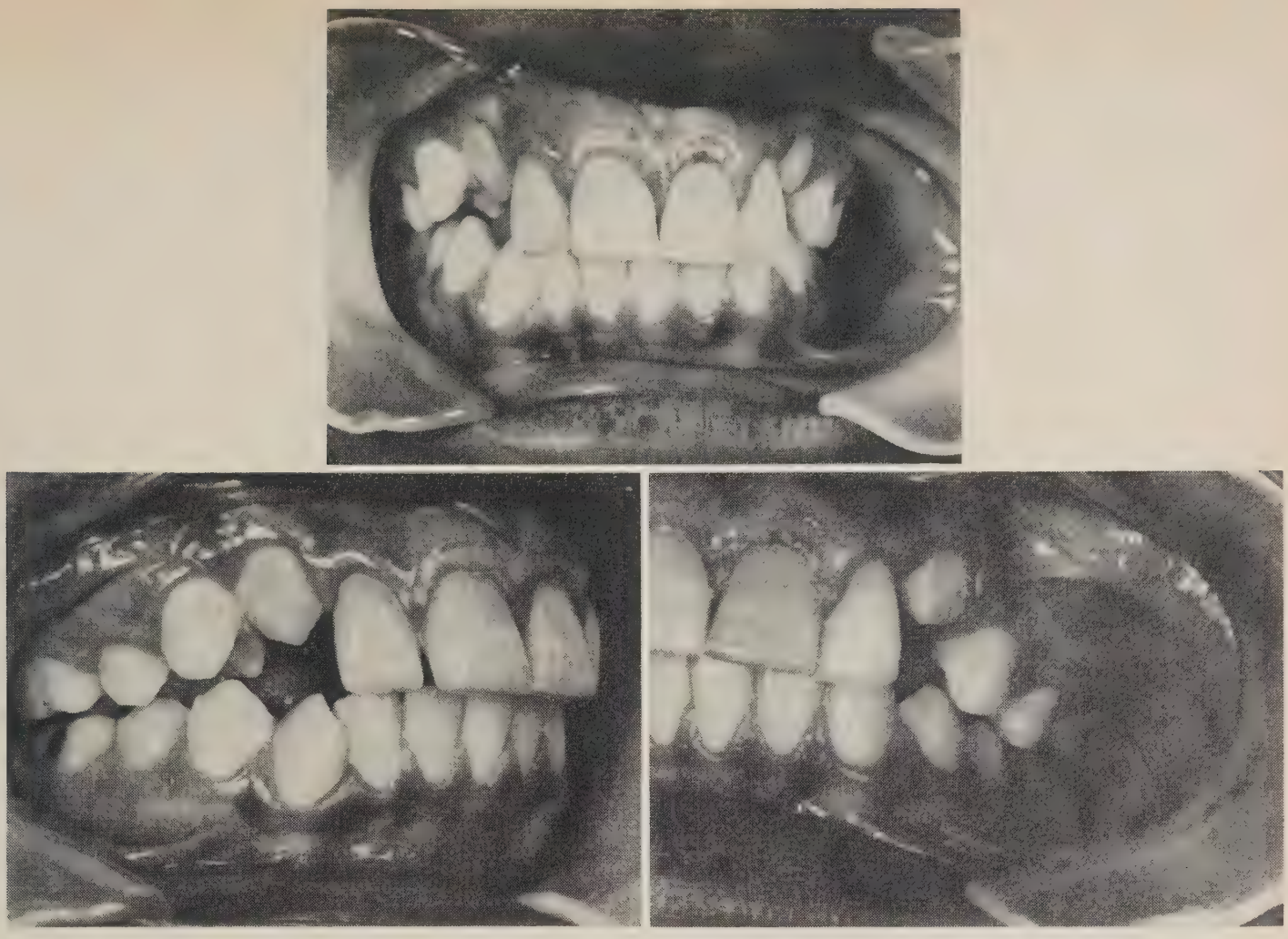

Fig 4 View of the occlusion, a year after surgery. Both maxillary cuspids are erupting into their normal position.

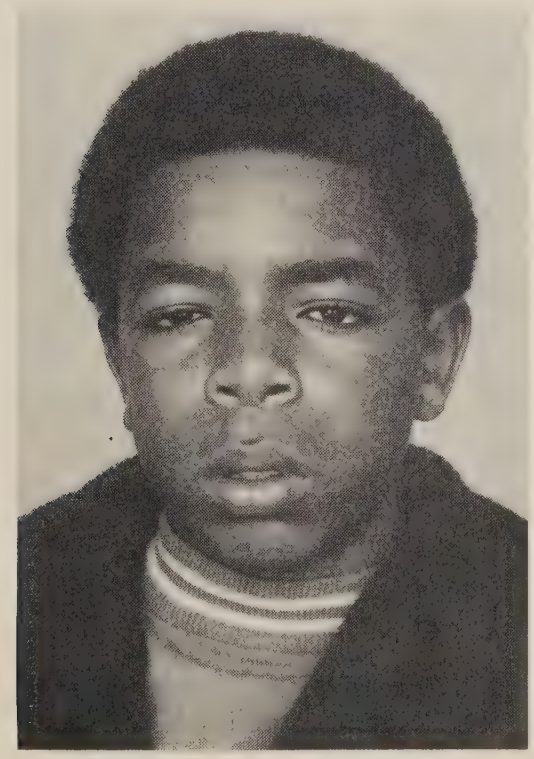

Fig 5 Full face photograph taken two years after the operation.

nasal floor and above the apices of the teeth. Similar vertical and horizontal cuts were made on the right side between the cuspid and first bicuspid. These were extended medially and up to the palatal bone, first with a bur, and then with an osteotome.

Palatal incisions were made around the necks of the left lateral incisor and cuspid and those of the right cuspid and first bicuspid. A palatal tunnel was then reflected, dissecting the palatal flap from the roof of the mouth but preserving the anterior palatine artery. The buccal vertical cuts on each half of the maxilla were then extended through to the palatal bone, completing osteotomy of the palatine bones.

Using osteotomes, I detached the anterior premaxillary segment from the maxilla and repositioned and checked it against the interocclusal splint. Erich arch bars were adapted to the upper and lower arch and ligated to each tooth with 24 gauge stainless steel wire.

The space resulting from repositioning of the anterior segment was filled with bone chips obtained from the rib.

Finally I closed the wound with 0000 interrupted chromic catgut sutures. Intermaxillary fixation was established using 24 gauge stainless steel wire.

During and after the operation the patient received by intravenous administration 2 litres of 5 per cent dextrose, each litre mixed with 5 million units of buffered potassium penicillin G. On the second day, and thereafter for a total of one week, he was given 600,000 units of penicillin intramuscularly twice a day.

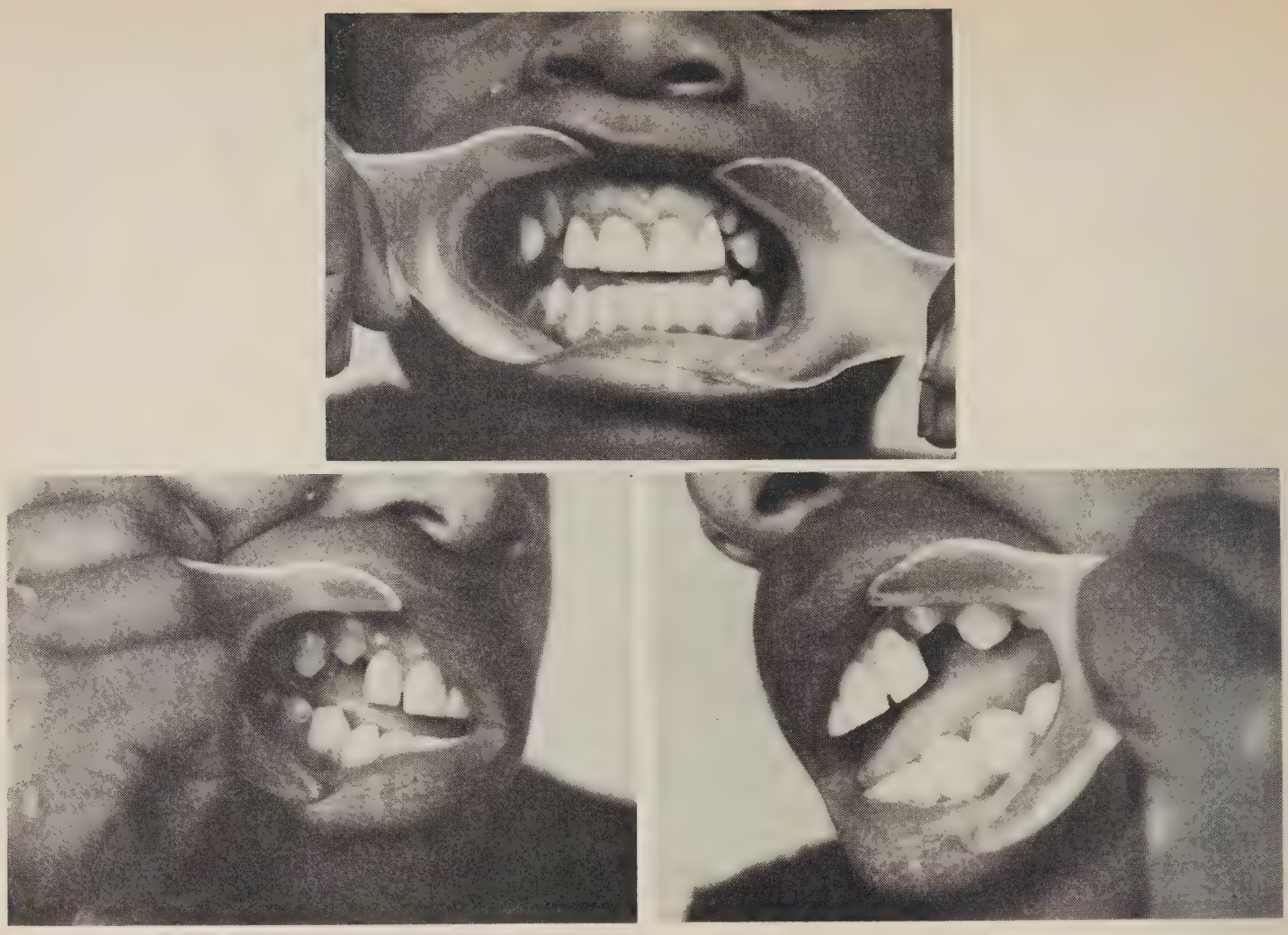

Fig 6 View of the occlusion, two years after surgery.

His postoperative progress was uneventful, and he was discharged one week after the operation.

## Comments

Pre-operative and postoperative orthodontic consultation is a necessity in surgical correction of occlusal abnormalities. Pre-operative evaluation using cephalometric radiographs, study casts and photographs is an essential preliminary requirement. The patient must also be adequately prepared for what is expected of him postoperatively.

Having operated on 11 of these patients (nine requiring anterior maxillary osteotomy and two requiring posterior maxillary osteotomy) I find that there is a transient loss of response to vitality tests, with recovery within six months. The teeth are viable during this period and the osteotomized fragment is totally stable after 3½ months.

Repositioning of the premaxillary segment in the present case permitted the creation of a channel with sufficient room to allow for normal eruption of the unerupted cuspids. These two teeth continue to erupt into their assigned position, and our orthodontic consultant believes that they will assume a precise functional alignment.

The postoperative position of the incisors has also remained unaltered (Fig 3-6) in the two years since the operation was performed.

## Summary and conclusion

Surgical orthodontics for correction of facial deformities offers an excellent and acceptable alternative when a patient cannot be treated by conventional orthodontic methods. In my experience the one-stage anterior or posterior maxillary osteotomy and ostectomy have been most successful for this purpose.

The aesthetic and functional results of the surgical osteotomy can be dramatic. The mother of the patient described in this article reports that the boy no longer keeps to himself; he is more sociable and his performance in school is now above average.

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# Case presentation visual aids for pulp therapy in primary teeth

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Every dentist is familiar with indirect and direct (pulpotomy and pulpectomy) pulp procedures for primary teeth. But how effectively does he explain these terms to the parents of his patients? This paper describes two visual aids that help him to answer a parent's question, "What is pulp therapy?"

Many parents are still unaware about the importance of a healthy primary dentition. The task of enlightening them rests primarily with the dentist or his auxiliary.[1-3] But some dentists are not effective teachers. Moreover, not all parents can comprehend relatively advanced concepts, no matter how well the information is presented.[4] Consequently, there is a need for visual aids to supplement verbal explanations as noted by authors who have suggested the use of charts, colour slides, models, pamphlets, sketches and diagrams.[5-10]

Visual aids should be distinct, concise and couched in laymen's terms. Technical explanations that necessitate a lengthy conversation should be avoided.

Visual aids should be neatly stored, yet readily accessible to the dentist and his auxiliary.

For clarity, the aid should represent a series of steps indicating possible diagnostic choices and the procedure deemed necessary in each instance. By viewing the sequence, a parent can readily follow successive stages of a particular technique and better understand the dentist's decision regarding treatment as well as the need for more than one appointment.

Two types of visual aids are suggested which meet the above requirements: (1) two models, each with four Ivorine primary second mandibular molars (Columbia Dentoform), and (2) two separate diagrams of cross sections of the same tooth.

## Models

One model demonstrates indirect pulp therapy (Fig 1); the other shows pulpotomy and pulpectomy (Fig 2).

To illustrate indirect pulp therapy, a deep Class II mesiocclusal preparation is made in tooth 1 of the first model (Fig 1A). A similar preparation is made in tooth 2 and a small amount (1mm diameter) of red wax is deposited over the mesiobuccal pulp horn to represent the beginning of pulp tissue (Fig 1B). The same Class II preparation is made in tooth 3. Yellow zinc phosphate cement is inserted in this preparation to simulate the medicated filling (Fig 1C). Tooth 4 illustrates a finished amalgam restoration (Fig 1D).

When describing indirect pulp therapy to a parent, the dentist points to tooth 1 and explains that the cavity may be deep and very close to or touching the nerve at the mesiobuccal pulp horn. Pointing to the red dot on tooth 2, he explains that he will stop removing the decay just short of the pulp. As shown in tooth 3, a medicated filling will be placed over the remaining decay. This will be covered with a temporary silver filling, as illustrated in tooth 4.

He tells the parent that at least six to eight weeks are needed for the pulp tissue to react by producing new hard tooth structure. He will schedule another appointment thereafter and remove the temporary filling at that time. After removing any remaining decay he will inspect the area to ensure that new hard tooth structure has formed. If at that time an opening into the nerve is noted, further pulp treatment will be necessary.

To demonstrate pulpotomy and pulpectomy, a deep Class II mesiocclusal preparation is made on tooth 1 of the second model and red wax (4-6mm diameter) is deposited over the mesiobuccal pulp horn (Fig 2A). This wax signifies that decay has entered the pulp causing some degree of infection. A similar preparation is made in tooth 2, with the occlusal portion very deep. Red wax is deposited over the entire occlusal floor (Fig 2B). This material represents coronal pulp tissue that has been amputated. Tooth 3 is prepared like the second tooth, with yellow zinc phosphate cement spread over the entire occlusal floor to simulate a medicated filling in the coronal pulp chamber (Fig 2C). A steel crown is then placed as the final restoration on tooth 4 (Fig 2D).

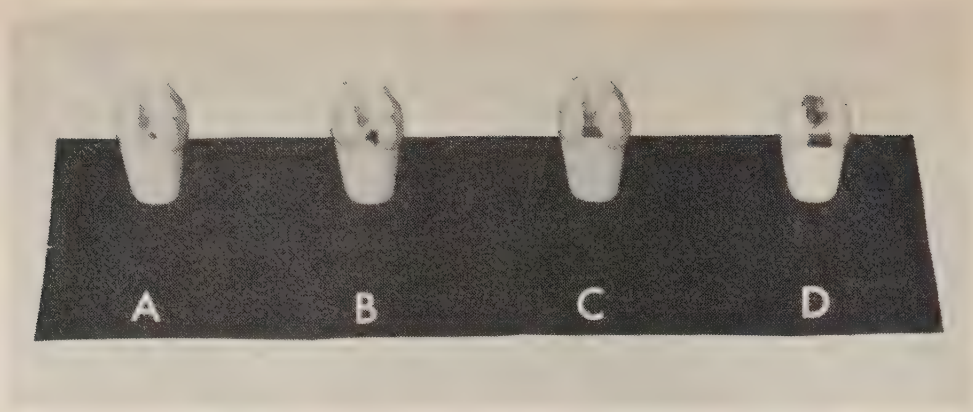


Fig 1 Ivorine primary teeth mounted on a base. This model is used to explain indirect pulp therapy.

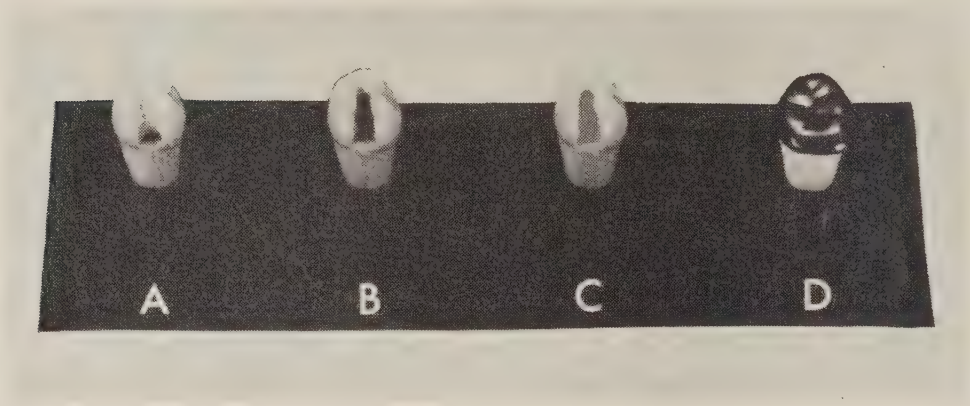


Fig 2 Ivorine primary teeth mounted on a base. This model is used to explain pulpotomy or pulpectomy procedures.

When describing pulpotomy to a parent, the dentist, pointing to tooth 1, demonstrates that the cavity has already entered the nerve of the tooth. He explains that if the infection is confined to the top part of the tooth (tooth 2), only that portion of the nerve need be removed. A medicated filling will be inserted into the coronal pulp chamber, as shown on tooth 3, and covered with an intermediate filling (not illustrated on the model). Finally, a steel crown will protect the tooth (4) and prevent fracture of the thin cavity walls.

The same model will suffice for explaining pulpectomy.

## Diagrams

Another method of describing pulp therapy is with the aid of diagrams of cross sections of the same tooth. Two diagrams are used: one to depict indirect pulp therapy (Fig 3), the other for pulpotomy and pulpectomy procedures (Fig 4).

These drawings are used like the models, with one important exception: specific key words written on the diagrams clarify and reinforce the verbal explanation. The parent can thus "see" what the dentist is "saying" and hence may absorb more information.

Cross sectional drawings show how the crown and roots of a tooth are related. As a consequence the pulp therapy diagram (Fig 4) gives a clear illustration of pulpectomy, which is more difficult to comprehend with the use of models. The drawings can be protected with acetate sheets and inserted into a looseleaf notebook for easy storage and access.

## Conclusion

These models and diagrams provide the dentist and his auxiliary personnel with case presentation aids that are readily accessible and easily stored. They outline step-by-step procedures, demonstrate choices of therapy and eschew technical language. They also show the parent that more than one appointment may be necessary to complete the treatment. Either or both can help a dentist to reply with confidence when he is asked: "What is pulp therapy?"

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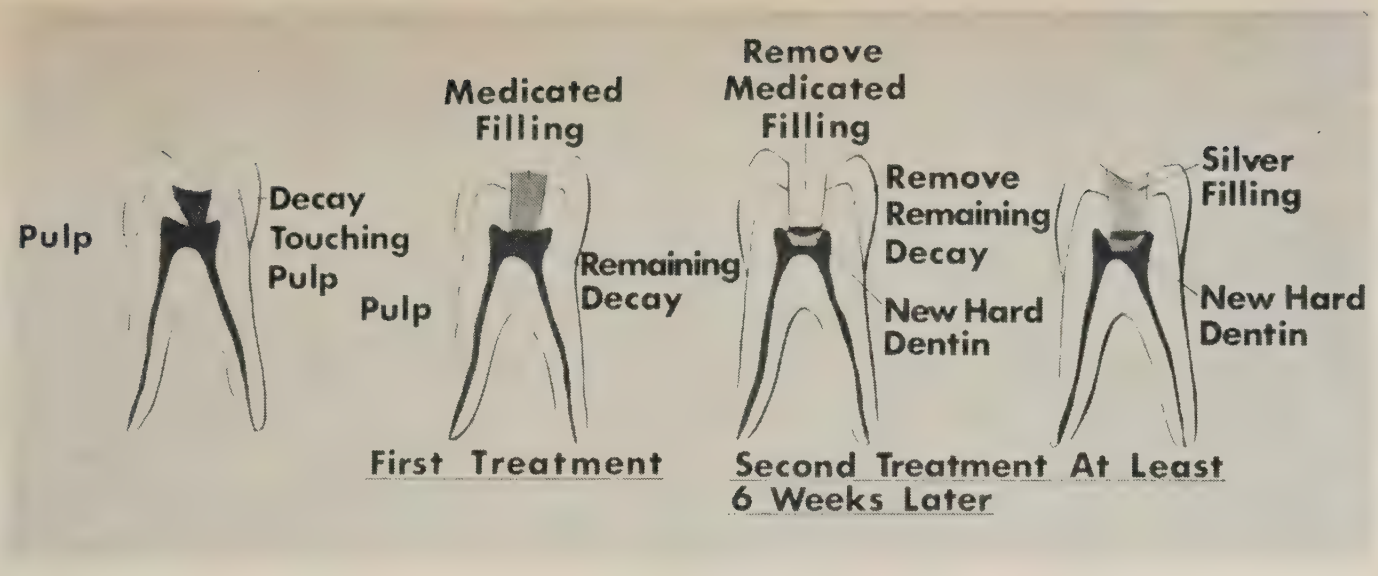


Fig 3

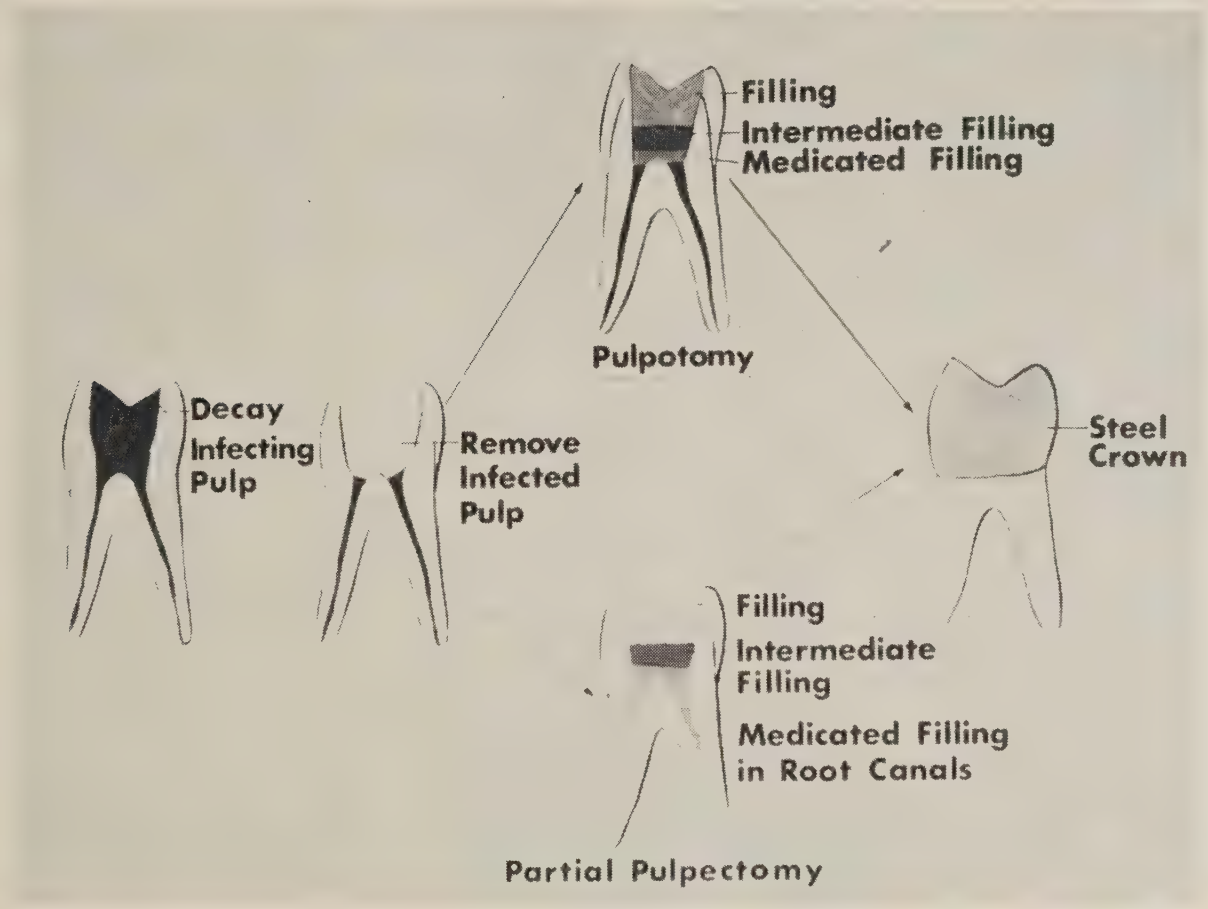


Fig 4


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## Book Reviews

### Theories and Techniques of Oral Implantology

*L. I. Linkow and Raphael Cherchève. Maureen Jones, ed and illus. St. Louis, The C. V. Mosby Company, 1970. Vol 1, 340 p. Illus. Vol 2, 360 p. Illus. $68.25*

Since oral implantology concerns all dental specialties as well as general practice, the subject may lose its present esoteric status. In that case Linkow's work will interest the entire profession. For the present, it will be welcomed by the more adventuresome and inquisitive.

Doctor Cherchève, who has contributed immensely to the field of implantology as well as to Doctor Linkow's interest and education in the subject, is included as a courtesy co-author. Linkow himself has performed more than 1,200 implant interventions and written more than 30 papers on the subject. Such vast experience coupled with an incisive and scientific approach speaks highly of his qualifications to produce this treatise. It is a thorough coverage of the field.

Volume 1 contains eight chapters. These include a survey of current techniques, the tissues involved in implant procedures, implant sites, implant histology, the evolution of dental implants, evaluating the implant candidate, operative tips and single tooth implants. The chapter dealing with implant histology places the discipline on a solidly scientific basis. Described in detail are histological sections obtained since the forties from laboratory animal studies, from failed implants in human subjects, from sound implants which had to be removed for other reasons, and from implants derived from cadavers.

Volume 2 has seven chapters. These deal with maxillary and mandibular endosseous implant interventions, subperiosteal implants, endodontic implants and atypical implant situations. In addition, there is a chapter about the endosseous blade implant developed by Linkow. In nearly three years of clinical trials and microscopic study the endosseous blade implant has enjoyed a very high success rate. Applicable to nearly all implant situations, it is relatively simple to insert. This versatility may lead to its dominance in endosseous implantology.

Causes of implant failures are covered in another separate chapter. Though edifying at any time, the study of failures is stressed by few authors. It is to Linkow's credit that he recognizes this didactic technique to the point that a separate chapter is devoted to an examination of failures.

Numerous high quality gross and microscopic photographs and illustrations are used throughout. Sound basic science considerations supported by research and clinical findings since 1913 place this work well within the realm of science, outside the area of empiricism where the subject matter has been for too long.

The bibliography contains upwards of 1,300 references to papers dealing with implantology and related subjects. The index is equally comprehensive.

The experience of other workers in this field indicates that fixed prostheses used in conjunction with implants have a significantly higher success rate than removable ones. Regrettably, this noteworthy point is not stressed. Another shortcoming is the absence of colour plates. Hopefully, subsequent editions will correct these small inadequacies.

Linkow's prodigious work will nevertheless occupy a prominent and historic position as the first comprehensive work on this, as yet, controversial subject.
*M. Somborac*

### Selection, Hiring and Training of Dental Auxiliaries

*E. J. Green and Nathan Kohn, Jr. Toronto, W. B. Saunders Company Canada Limited, 1970. 487 p. $17.30*

Dental auxiliaries must be more closely integrated into dental practice if dentists are to delegate them broader responsibilities. Selection and training are the keys to such integration.

The authors, a dental practitioner and a psychologist, recognize that formal training facilities for dental auxiliaries will remain inadequate for the next few years. Dentists must therefore continue to select and train their own employees.

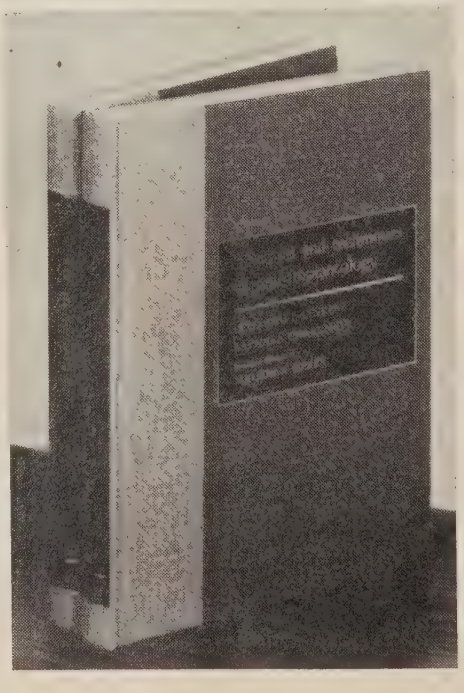
Doctors Green and Kohn show the reader how to avoid the frustrations, the loss of income and the patient dissatisfaction that result from hiring auxiliaries by chance. They explain why the dentist must assume the role of a manager, organizing his practice in terms of values and purposes. He is shown how to prepare job descriptions and appraisals so that he may know what to expect when auxiliaries assume the assigned responsibilities.

Topics like motivation and communication are developed in a manner that gives the practising dentist adequate background for dealing with employees. Actual case histories illustrate how effective rapport promotes proper attitudes.

The chapters on interviewing and selection present information that has long been needed. The dreaded process of dismissal is made easy. The final chapter covers the organization and nature of groups, partnerships and associates.

Complementing the text are appendices with job rating forms and examples of newspaper advertisements, screening techniques, practice appraisal and patterned interviewing as well as supplementary tests and questions.

The busy dentist may find in this book more than he really wants to know about psychology; but he can easily extract the information he needs for selecting and training his auxiliaries.
*J. F. Reid*



### The Design and Construction of Removable Orthodontic Appliances

*C. P. Adams. Ed 4. Bristol, John Wright & Sons, 1970. (Available from The Macmillan Company of Canada Limited, Toronto) 186 p. Illus. $7.95*

This fourth edition is a well illustrated manual with a total of 490 photographs and diagrams in its 177 pages of text. It describes very concisely the construction and manipulation of removable appliances commonly used in Europe, with emphasis on those of the author's design.

Although the title may not suggest too much of value to the orthodontist who uses fixed precision mechanisms, there is an excellent chapter on functional removable appliances, and another chapter on the science and application of resistance welding.
*M. R. Culbert*

# Our children's keepers

*An unemployed truck driver was recently sentenced to six months' jail for killing a youngster who would not stop crying. The child died on its fifth visit to the doctor. On four previous occasions he was taken there for treatment of various injuries. The doctor referred in evidence to finding multiple bruises on the child's chest, healing fractures of four ribs, and healing second degree burns on the back of his left hand and fingers, marks and bruises behind each ear, two small burns on the lower chest, and dislocation of four lower front teeth.*

To a normal mind there is something altogether incomprehensible and revolting in the idea of a parent beating or maltreating a small child. Yet this very thing is happening more frequently than we like to think. In two recent years there were 648 reported cases of child beating with 60 deaths in Canada. The actual number may be much greater.

In situations where the normal, deep-seated human instinct to give a child the warmth and love it needs has become warped, it is all too easy for a vicious parent or guardian to give vent to his temper by beating or otherwise ill-treating a child. Often the violence takes place in the seclusion of the home and the bruises, burns or cuts can be concealed or attributed to more innocent causes.

There has been little psychological research into the reasons which impel some parents to batter their own youngsters so savagely. The facts available suggest, however, that while instances of brutality are found in all levels of society, they occur more frequently in families where parents are under stress through unemployment or extreme poverty. Alcoholism and mental instability are also factors, and it is noteworthy that the guilty mother or father is frequently too young for the responsibilities of a family. It is significant, too, that it is often unwanted children who are the victims of brutality. The battered child syndrome is a particularly ugly offshoot of some of the basic weaknesses of our society.

It seems unlikely that human nature will suddenly change, and that parental savagery will disappear. Ignorance, selfishness and viciousness will continue to find victims among those who cannot hit back. Without waiting for all these weaknesses to be corrected, however, there is much that can be done to reduce the incidence of extreme brutality to children.

The first requirement is better reporting of these outrages. Terence Murphy, the MP for Sault Ste. Marie, wants a law that would make it compulsory for physicians and dentists — in most cases the first people to know — to report cases of child beating. Such laws exist in all 50 of the United States. But in Canada, only four provinces — British Columbia, Alberta, Ontario and Nova Scotia — have child welfare acts that ask for information on child battering cases. Only British Columbia's law makes reporting compulsory. A physician there can be fined as much as $500 for not telling what he knows about a battered child to the proper authorities.

Few people, of course, relish the role of informer, either because of an instinctive distaste for spying or because of a wish to avoid uncomfortable involvement in someone else's affairs. We would not wish to see a spy system set up; yet conscience demands that the welfare of the child be placed above other considerations.

The courts also have a duty in the matter. When parents are prosecuted and convicted of manhandling their children, the penalties imposed vary widely. Men and women who have been guilty of persistent and sickening cruelty to a defenceless child escape far more lightly than they deserve. Greater severity might have a wholesomely deterrent effect.

There is also often an excessive reluctance on the part of the child welfare societies to take children away from their parents even in aggravated cases of abuse. Under normal circumstances, of course, it is sound policy to keep a family together, but this surely does not apply when one or both parents are given to savage assaults on the child so that leaving it in their care may be equivalent to a sentence of death.

The special vulnerability of children makes it all the more important that society spare no effort to protect them. Tighter vigilance by all of us is the best hope of assuring that protection. We are, after all, our children's keepers!

# Intermédiaire inutile?

Les récentes déclarations des denturologistes dans plusieurs provinces canadiennes semblent prêter à la confusion, tant dans l'esprit de la population que celui de la presse. Essayons d'éclaircir le problème dans le contexte de nos connaissances, tant du point de vue scientifique qu'économique.

Disons tout d'abord qu'il ne s'agit pas de décider s'il faut satisfaire les revendications des denturologistes ou de conserver le contrôle exclusif de l'acte dentaire par la profession, mais bien de découvrir un moyen de desservir la population qui protègera sa santé et dont le coût restera à la portée de tous.

L'Association des denturologistes du Québec, dans un mémoire soumis à la commission parlementaire des Affaires sociales a demandé le droit de servir directement le public pour les prothèses amovibles, sans intermédiaire, c'est-à-dire, sans devoir recourir aux services d'un dentiste.

Examinons maintenant ce qu'est une prothèse. Le *Petit Larousse* donne la définition suivante: "Addition artificielle, qui a pour objet de remplacer un organe enlevé en partie ou en totalité".

On ne parle donc pas ici de l'achat d'un dentier (comme s'il s'agissait d'une paire de chaussettes) mais bien du remplacement d'un *organe du corps.* La prothèse doit rétablir bien plus que l'apparence esthétique des dents, mais doit également remplacer l'os de soutien, être conforme à la musculature et satisfaire les besoins phonétiques et d'articulation.

La formation des techniciens dentaires ne leur permet pas, à l'heure actuelle, d'avoir les connaissances suffisantes en anatomie, physiologie, pathologie, bactériologie et diagnostic pour pouvoir remplacer les fonctions actuelles du dentiste. Cependant, leurs connaissances pourraient être augmentées comme le propose le rapport du Comité spécial d'étude sur les auxiliaires dentaires[1] (Proposition no 20): "Que des programmes de recyclage plus courts, environ la durée d'une année scolaire complète, soient établis dans le système éducatif du niveau collégial à l'intention des *techniciens dentaires,* et des personnes visées par les lois provinciales sur les techniciens dentaires qui veulent atteindre le niveau de *technicien dentaire diplomé et inscrit".*

Le fait que les techniciens dentaires n'ont pas une formation suffisante est renforcée par la Proposition no 39: "Que les provinces voulant autoriser les techniciens dentaires diplômés à offrir certains services au public, sous la surveillance d'un dentiste autorisé à exercer l'art dentaire dans la province, n'habilitent pas d'office les techniciens dentaires actuels qui veulent s'engager dans cette voie. Nous proposons plutôt qu'il soit demandé à ces techniciens de suivre le cours de formation théorique de deux ans ou les cours abrégés de recyclage mentionnés aux propositions 17, 18 et 20 et, de plus, d'être reçus aux examens préparés par les autorités enseignantes et de satisfaire à toutes les autres conditions liées à l'octroi du permis de pratiquer".

Voilà donc qu'en 1971, en dépit de l'expérience des denturologistes pratiquant légalement en Alberta et en Colombie-Britannique, une étude accomplie à l'échelle nationale conclut que les techniciens dentaires n'ont pas la formation requise.

Ce même rapport recommande que, même avec une formation plus avancée, "les techniciens dentaires diplômés travaillent dans des cabinets et dispensaires dentaires sous la surveillance d'un dentiste".

Le dentiste n'est pas un intermédiaire inutile et coûteux mais le directeur qui assume la responsabilité professionnelle de tous les soins dentaires qui sont accomplis par des auxiliaires.

Les auxiliaires seront employés dans des cabinets groupés ou des dispensaires spécialisés.

C'est ainsi que la santé de la population sera protégée et les services de prothèses maintenus à un coût abordable.

1 Rapport du Comité spécial d'étude sur les auxiliaires dentaires. Information Canada, Ottawa 1970.

# Letters/Courrier

*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponsible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal*

**Composite resin restorations**

We have read with considerable interest the article by Doctor Ambrose and his colleagues entitled "Manipulation and Insertion of a Composite Resin for Anterior and Posterior Cavity Preparations." The authors are to be congratulated for their efforts to solve one of the many problems inherent in dental caries.

Obviously there are two major disease entities in dentistry: one related to dental caries, the other to periodontal disorders. Within dental caries there are two important approaches: one prevention-oriented, the other treatment-oriented. This article relates entirely to one aspect of a treatment-oriented approach.

To solve the problem of dental caries by treatment, one must produce more and better fillings than exist today. This premise has guided the approach of researchers in clinical dental materials. We believe that the authors, while sincerely attempting to solve the problem of manipulative skills and materials, did not in fact create simpler procedures and better results than already exist. Certainly their comments about Class II preparations do not encourage us to believe so: "Open contacts may be corrected by cutting a small box-shaped cavity in the set composite at the contact site and adding fresh material." We strongly doubt the efficacy of this procedure. One must be very naïve to expect dentists to proceed in this fashion in a busy practice. Many do not even use a rubber dam!

We believe that the opinions of Scott and Roydhouse, which are referred to in this paper, still hold true, namely that composites may serve all the purposes for which silicates can be used. Further, composites may be used for Class V cavity preparations in preference to gold because of the reduction of chairside time, the possible reduction in trauma to the periodontal membrane and the pulp, and because the cavities can be smaller, shallower and less conspicuous.

The use of a composite as a substitute for amalgam or cast gold in the Class II cavity preparation can be justified only on the basis of aesthetics. Centric stops are difficult to manage with amalgam and impossible with composites.

The major objection to an article such as this is that it is like a half truth which, in turn, is like a half brick which when thrown goes further than a whole one. The implication is that these materials are good for posterior teeth. We do not believe this to be the case.

*T. J. Harrop, LDS, DDS, MS, PhD*
*Chairman*
*Department of Restorative Dentistry*

*R. H. Roydhouse, BDS, MS, DDSc*
*Professor*
*Department of Restorative Dentistry*
*Faculty of Dentistry*
*University of British Columbia*

Doctors Harrop and Roydhouse have missed the objectives of our paper. They are:

1. To assess possible methods for the insertion of composite resins, especially in Class I and II preparations.

2. To describe a clinical study whereby these restorations will be carefully evaluated by digital, visual and impression techniques and compared to amalgam restorations placed in the same mouth at the same time. The majority of the patients selected for this clinical research project were first and second year dental students. Recall of the patients will be no problem and, whether the restorations succeed or fail, there is something to be learned by all concerned.

3. To mention problems that arise in attempting to use composites where amalgam or foil have been used successfully for many years. These must be clearly stated so that practitioners will be cautious when considering these materials. Their physical properties and apparent resistance to abrasion indicate that, when aesthetic considerations so dictate, composites *may* have a role on functional surfaces of posterior teeth, especially in conservative preparations for direct filling materials. However, we do not suggest these materials could substitute for cast gold restorations.

The use of composites to replace gold in Class V preparations also requires some long-term observations. There are still no conclusive studies to show that these essentially rough materials contribute to the health of gingival tissues or arrest caries in the gingival third of the clinical crown.

The comment relative to "centric stops" reflects our critics' lack of understanding that some schools teach students to modify the design of cavity forms when anatomic defects and caries permit a "selective type" of cavity preparation. When this is possible, centric stops on sound tooth structure can often be avoided in the outline form for any direct restorative material. Our study is trying to determine whether or not composite resins in their present form are suitable materials to restore functional surfaces of posterior teeth.

Teaching institutions are where such studies should take place. Our one to two year results of this project will be presented as a panel and by a table clinic at the Canadian Dental Association national convention in Ottawa in September. At this stage they can only be a "half truth" for it will take several more years to determine the "whole truth." It has taken over 100 years to find out almost all the truth about silver amalgam. And further improvements are still possible for this "ancient restorative material." Time marches on!

*E. R. Ambrose, DDS*
*Dean*
*Faculty of Dentistry*
*McGill University*
*Montreal 109, Que*

**Rubber dam template**

The article on fabrication of custom rubber dam templates in the March issue is interesting and deserves favourable comment.

After a trial period of several weeks I find the technique outlined by Doctors Spedding and Cooper a fairly precise yet relatively simple method of rubber dam preparation. It should be used

most extensively in practices where there is the broadest utilization of dental auxiliaries and is advantageous in restorative procedures involving the isolation of large segments of the arch.

Recent graduates will find it especially helpful in establishing an accurate rubber dam technique and in operating more efficiently through greater use of dental assistants. As they master the procedure of correctly centering the dam and locating the holes to be punched, there may be less reliance on the template. Experienced practitioners, who routinely prepare the dam themselves, may find the template entirely unnecessary.

May I suggest one improvement? With inclined teeth, such as protrusive incisors, the holes may be too far apart and too far forward if the centres of the anterior teeth are used to locate the holes. A more accurate template results by punching the holes in line with estimated centres of the teeth at the gingival third.

Similarly, some modification in the position of the perforations is necessary in Class V cavities when there is considerable extension of caries gingivally and in Class II, III and IV cavities when more tissue compression is required. These modifications can best be registered on the rubber dam surface with a different coloured felt-tip pen prior to punching.

I believe the custom rubber dam template can be used to good advantage in many offices.

*M. M. Woronuk, DDS*
*Medical-Dental Bldg*
*Fairview, Alta*

**Lip cancer**

Doctor Anderson's article on causes and prevention of lip cancer (April issue) is extremely interesting and basically sound. I agree that most of the evidence, such as geographic predominance in southern latitudes, and higher incidence in rural populations, outdoor workers, males and Caucasians, appears to point to ultraviolet light as a major contributory aetiological factor. Other possible carcinogenic causes should not be underplayed, however. Some of these may be more easily avoided than the effects of sunlight.

The conflicting statistical evidence about the association of pipe smoking and lip cancer is interesting. At one time the use of clay pipes and lip cancer seemed a fairly well established relationship. Clay pipes were probably supported by the hand and placed between the lips during smoking, whereas modern pipes are mainly gripped between the teeth so that the outlet of the mouthpiece now rarely comes into direct contact with the vermilion border of the lips.

Doctor Anderson does not give the lip cancer incidence in cigar and cigarette smokers. This, too, may have potential interest in view of the known carcinogenic effects of tobacco, the relationship between tobacco chewing and cancer of the cheek, and the obvious irritative effects which smoking produces upon the oral tissues in the form of "smokers' keratosis."

I take modest exception to the statement that "squamous cell carcinoma of the skin or vermilion border is far less prone to extend to regional lymph nodes and distant sites than from other foci. This shows up in the five year survival rates which . . . are 83 per cent. . . ." Perhaps these features reflect the early notice which these lesions command and the surgical accessibility of the lips and skin. Accordingly, some authorities claim that practically no one should die of cancer of the lip – a sharp contrast to the relatively high rate of occurrence associated with intra-oral cancers.

I believe the value of this excellent article lies in reminding us that effective cancer therapy anywhere in the body depends on early detection, and that the five year cure rate for intra-oral cancer rests largely on early diagnosis. If it spurs dentists to inspect all oral soft tissues during "routine checkups" and if it encourages cytological or biopsy examination of any area which deviates from the normal, such an article will have served a major purpose.

*J. D. Spouge, MDS, FDS, RCS(Eng), MRCS(Eng), LRCP(Lond)*
*Faculty of Dentistry*
*University of British Columbia*
*Vancouver, BC*

**Immobilisation des fractures des maxillaires chez l'enfant**

Les fractures des maxillaires sont relativement rares chez les enfants. En effet, d'après Rowe et Killey, autorités en la matière, seulement 5 p.c. de toutes les fractures du massif facial surviennent chez des enfants de 12 ans et moins. Là encore, seulement 1 p.c. atteignent des enfants de leur naissance à l'âge de six ans.

C'est dans ce contexte restreint qu'il faut porter des commentaires sur l'article récent des docteurs Mascrès et Franchebois (Journal de l'ADC, avril 1971). Ceux-ci nous expliquent une méthode de contention intermaxillaire à l'aide de ligatures transdentinaires des dents primaires.

Les problèmes de contention sont multiples chez l'enfant: dents coniques ou absentes, manque de coopération, absence de hauteur verticale. La technique des ligatures transdentinaires demande une instrumentation simple. Elle est facile d'emploi. Elle devrait faire partie du vaste répertoire des techniques d'immobilisation intermaxillaire. Cependant son application est très limitée à cause de l'incidence si peu élevée des fractures chez des jeunes enfants. Elle n'assure pas, le plus souvent, en dentition mixte un ancrage adéquat.

Cette technique peut être un atout considérable pour la contention interdentaire des fractures alvéolaires si fréquentes chez l'enfant. Nous aurions aimé voir les auteurs élaborer sur ce point.

Enfin nous remercions les docteurs Mascrès et Franchebois de nous avoir exposé clairement une technique peu employée en Amérique du Nord et pour leur souci de trouver des méthodes de contention applicables à l'enfant.

*Paul Mercier, DDS, FRCD(C)*
*1414 rue Drummond*
*Montréal 107, Qué*

Il ne serait guère enrichissant de discuter longuement sur les pourcentages des fractures des maxillaires chez l'enfant: les statistiques varient légèrement suivant les pays (en raison, sans doute, de leur pyramide des âges), leur degré d'industrialisation et de motorisation, le recrutement du département hospitalier concerné, etc. L'important est que ces cas difficiles existent et peuvent se présenter inopinément à n'importe lequel d'entre nous.

La méthode des ligatures transdentinaires, nous parait valable même chez l'enfant en denture mixte: la stabilité peut être ici un peu précaire en raison des lacunes de l'articulé, mais les ancrages eux-mêmes sont valables et précieux: on peut compléter la stabilité, latérale en particulier, par une attelle extemporanée en résine autopolymérisable.

L'intérêt nous parait majeur dans les fractures complètes en raison de leur gravité.

Les fractures alvéolaires en denture lactéale, ne mettant pas en jeu la continuité des bases osseuses, ne nous paraissent pas justifier, dans la plupart des cas, un blocage intermaxillaire. Trop fréquemment le fragment alvéolaire est refendu en plusieurs sous-fragments de volume faible et de vascularisation précaire, et la solution la plus valable nous parait le plus souvent l'extraction des dents de lait flottantes (que les orthodontistes nous pardonnent) suivie de la suture soigneuse de la muqueuse gingivale: la protection des germes définitifs sous-jacents devenant l'impératif principal.

*C Mascrès, Docteur en chirurgie dentaire, MSc*
*P. Franchebois, MD, DDS*
*4874 Côte des Neiges*
*Montréal 247, Qué*

# EXECUTIVE DIRECTOR'S PAGE

W. G. McIntosh, DDS

## In-hospital accreditation

The health professions are working together to try to slash duplication of effort in the setting up of accreditation programs in hospitals.

CDA, through two of its councils, is directly involved in accreditation. The Council on Education accredits undergraduate dental programs, schools of dental hygiene, certain postgraduate and graduate dental programs, specific intern and residency programs in hospital and soon I expect courses for dental assistants.

The Council on Hospital Dental Services is responsible for assessing dental departments in hospitals. In each case, CDA involvement is at the invitation of the institution housing the educational program or department. But also involved with in-hospital accreditation are numerous other bodies.

I joined an informal meeting with representatives from the Canadian Medical Association, the Association of Canadian Medical Colleges, the Canadian Hospital Association, the Canadian Council on Hospital Accreditation, the Royal College of Physicians and Surgeons of Canada and the Canadian Nurses' Association.

Each of these organizations is heavily committed to in-hospital accreditation. Besides trying to cut down on needless overlapping, we at the meeting also hoped to find some way to avoid disturbing hospital administration. We met at CMA's new headquarters in Ottawa.

As the individual accreditation programs were briefly outlined, it became clear that there are more than 125 different groups and agencies interested in accrediting their respective areas in hospitals. The overlapping of effort was obvious.

We then turned to the basic purpose of all the accrediting programs — to assure that the patient receives optimum care. Optimum care requires certain standards of performance by the individual practitioner as well as standards of quality of the facilities involved.

The question arose:

- What is a good standard of performance for a practitioner?
- How do you measure it?
- How do you assure that actual performance measures up to the standard?
- In a nutshell, should there be an accrediting mechanism for the individual practitioner as well as for the plethora of systems and departments within the hospital?

Hundreds of millions of tax dollars are being spent each year on health care. Governments and the public are increasingly questioning the quality and delivery of health care, as costs rise.

The group agreed that there are ways by which some accrediting agencies can effectively co-ordinate their efforts. They also agreed that the health professions should try to define "optimum care" and to come up with ways of monitoring practitioners in and out of hospitals.

I came away from the meeting believing strongly that the dental profession's accreditation programs are among its most important activities. Every effort should be made to make these as effective as possible. The public as well as our own practitioners should be made aware of the profession's drive to set up and maintain high standards of dental health care.

We're going to hear a lot more about "optimum" health care from government, the news media and the public itself. But we should not be waiting to hear from them. The health professions—dentistry included—should take the initiative. We should be acting rather than reacting!

## Provincial meetings

President Bill Spence and I have just completed another tour of meetings. We have had the privilege of attending the second annual meeting of the College of Dental Surgeons of British Columbia in Victoria and the annual meeting of the Saskatchewan college in Prince Albert.

Following those conferences we attended the annual meeting of the Ontario Dental Association's Board of Governors and the ODA convention in Toronto.

Journal editor, Frank Compton joined President Spence for the annual convention of the Quebec Dental Surgeons Association in Montreal. Each of these meetings provided excellent opportunities for discussion of provincial and national developments affecting the profession. All were well organized and attended. President Spence and I highly commend each organizing committee for their extensive efforts in furthering continuing dental education, organizational development and social intercourse.

## National Convention

### Convention registration policy and fees announced

The Convention Committee has announced the registration policy and fees for the 1971 CDA national convention in Ottawa September 30 to October 2. Registration for dentists is $30. The fee for the ladies program is $10. Admission to the President's Party (Friday, October 1) is $10 single and $20 for a couple.

Canadian and foreign dentists, also clinicians and table clinicians who are CDA members will pay the full registration fee and purchase tickets for any social functions they wish to attend.

Invited international guests and CDA honorary members and their ladies are accorded free registration and free access to social functions.

Clinicians who are not CDA members, CDA student members and non-dental Canadian delegates are accorded free registration but may buy tickets for any social functions they wish to attend.

Non-CDA student members must pay a $5 registration fee and purchase tickets for social functions. The registration fee also provides all benefits of CDA student membership for 1971-2.

There is free registration for dental hygienists, dental assistants and commercial exhibitors but they may buy tickets for the social functions.

The CDA has reserved a large block of seats at the National Arts Centre on Thursday night, September 30. Tickets are obtainable at the box office on a first-come, first-served basis.

### Convention delegates to hear Doctor Leatherman

G. H. Leatherman, London, Eng, executive director of the Fédération Dentaire Internationale has accepted an invitation to address the breakfast meeting on Friday, October 1, during the CDA national convention in Ottawa.

Doctor Leatherman will speak on the FDI with special emphasis on the 1972 meeting in Mexico City and the 1977 congress tentatively scheduled for Toronto.

G. H. Leatherman

### Royal College convocation set for September 30

The Royal College of Dentists of Canada will hold its annual meeting and convocation in Ottawa, September 30, during the CDA national convention, it has been announced.

The annual meeting of the college, open to all fellows, begins at 8:00 am in the Chateau Laurier Hotel.

H. M. Worth, a prominent Vancouver radiologist, will present a special lecture on "Fibrous Dysplasia as It May Concern the Dentist and the Oral Specialist" at 2:00 pm, also at the Chateau Laurier.

The convocation begins at 4:00 pm and will be followed by a reception and dinner for fellows and their wives at 6:00 pm. Both events are at the National Art Centre.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stock as follows on May 31, 1971:

*Fixed Income Fund* $11.680;
*Common Stock Fund* $23.610.

Total assets (market value) of the plan were $10,587,042.29.

The following portfolio purchases and sales occurred during the preceding month: bought 1,000 shares Noranda Mines, 2,000 shares Consolidated Foods, 1,000 shares Alcan Ltd, 1,000 shares Jim Walter Corp, 1,800 shares Maclean Hunter Publishing, 5,000 shares Royal Bank of Canada, 2,000 shares Hiram Walker, 10,000 shares John Labatt, and 3,000 shares Acquitaine; sold 2,000 shares American Express and 262 shares IBM.

Section 79B of the Income Tax Act permits tax free contributions of up to 20 per cent of earned income or $2,500, whichever is less, to a personal retirement savings program.

The Royal Trust Company, trustee of the CDA Retirement Savings Plan, offers two separate investment media: a fixed income fund and a common stock fund. Contributions may be allocated wholly or partly to the funds of the contributor's choice. Transfers between funds are allowed without penalty.

The fixed income fund, confined to guaranteed government bonds, other guaranteed fixed income securities, debentures, preferred shares and other fixed income securities, offers excellent income with maximum security. The common stock fund, comprising Canadian and carefully selected American and other foreign stocks, has capital growth as its main objective.

No charges or commissions are payable on joining or withdrawing from the plan.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Canada and the Provinces

### Science Fair winners honoured by CDA

Jane Lois Douglas, a 17 year old Belleville, Ont, student who is in grade

13 at Centennial Secondary School, and Brian Maki, 15, a grade 10 student at Oak Bay Junior Secondary School in Victoria, have won the two Canadian Dental Association awards given at the tenth Canada-wide Science Fair held at the University of Alberta, Edmonton, May 11-15. This year's selections were made on behalf of the CDA by G. H. Sperber of Edmonton.

The Canadian Dental Association is one of the sponsors of the Youth Science Foundation which promotes extra-curricular science activities and organizes the annual fair. The CDA cash awards of $100 each are accompanied by offers of assistance in locating research material for future projects.

14 MOUNT PLEASANT ROAD
BELLEVILLE, ONTARIO
TELEPHONE (613) 968-7702

MAY 26, 1971.

W. G. McIntosh, D.D.S.
Executive Director,
Canadian Dental Assoc.,
234 St. George St.
Toronto 180.

Dear Sir,

I wish to acknowledge the award of one hundred dollars donated to the Canada-Wide Science Fair, by the Canadian Dental Association. As recipient of this award, I will find it most useful in my future studies.

I wish you to know how much this is appreciated, and how encouraging it is for young scientists to have such awards available for continued education. I hope that you find these contributions beneficial, – I certainly think that it is worthwhile to encourage enthusiasm in science, and other fields, in these days when apathy seems to dominate many young people.

I wish to thank you most sincerely for your kindness and interest.

Yours very sincerely,

Jane Douglas.

## Dental Organizations

### ODA board re-endorses voluntary membership

The Board of Governors of the Ontario Dental Association, at its meeting of May 14-15, reaffirmed the principle of individual voluntary conjoint membership in national, provincial and local dental organizations and voted to collect conjoint membership dues from Ontario dentists if and when such membership is inaugurated in the province. Dues would be apportioned to the Canadian Dental Association, the Ontario Dental Association and its component local societies.

In other actions, the ODA governors:

Learned that the Royal College of Dental Surgeons of Ontario is willing to transfer its property at 230 St. George St, Toronto, to the ODA for $1;

Called for a demonstration project to ascertain the feasibility of operating denture clinics in Ontario; and

Urged parallel exploration of other avenues, including private practice, for supplying denture service to marginal income groups.

### Ontario dentists elect Doctor Schiller

Windsor dentist L. J. Schiller has been elected president of the Ontario Dental Association succeeding Ivan Hrabowsky of St. Catharines.

L. J. Schiller

Born in Tilbury, Ont, Doctor Schiller graduated from the University of Toronto in 1951. Active in organized dentistry, he is a past president of the Essex County Dental Society and was elected to the Board of Governors and Executive Council of the Ontario Dental Association in 1970.

W. L. Heaslip of Toronto was named president-elect. Other members of the Executive Council are M. D. Charendoff, Toronto; N. L. Deifenbacher, Kitchener; J. E. Durran, Hamilton; R. K. Federchuk, Oakville; J. A. Guest, London; R. L. Moran, Toronto; and R. J. Yakasovich, Sault Ste. Marie. Representatives to the CDA Board of Governors are D C. Clee, Toronto; W. C. Deacon, Ottawa; J. E. Durran, Hamilton; Ivan Hrabowsky, St. Catharines; H. M. Jolley, Toronto; and L. J. Schiller.

### Ottawa society has new officers

G. C. Travis is the new president of the Ottawa Dental Society. J. A. Alexander was elected treasurer and H. J. Chartrand, secretary.

### Lambton County dentists elect officers

The Lambton County Dental Society recently elected new officers for the 1971-72 term. The president is B. A. Marsh.

Others named with Doctor Marsh are M. G. Paiement, vice-president; R. M. Griffin, treasurer; and Helen L. Shingles, secretary. All are Sarnia, Ont, dentists.

### Doctor McDougall heads BC dentists

W. D. McDougall of Victoria has succeeded G. A. Freeze of North Vancouver as president of the College of Dental Surgeons of British Columbia for 1971-72.

Others named with Doctor McDougall are J. L. Hornibrook, Vancouver, and R. B. Telford, West Vancouver, vice-presidents; and T. E. Ramage, Vancouver, treasurer. K. L. Croft, Vancouver, is managing director.

## International Items

### Canadian oral surgeons represented in Amsterdam

Twenty-one Canadian oral surgeons attended the Fourth International Conference on Oral Surgery in Amsterdam, Holland, May 16-21. They were part of the 600 oral surgeons representing 49 countries who were present at the meeting.

P. T. Smylski and Paul Chapnick of Toronto and Paul Mercier of Montreal presented important papers. The major symposiums dealt with the maxillary sinus and central non-odontogenic tumours of the jaws. Other discussions included temporomandibular joint problems and their treatment, surgical orthodontics, traumatic injuries, preprosthetic surgery, transplantation and bone grafting to replace destroyed or atrophied bone of the jaws.

All transactions of the IAOS meeting–which is held every three years–will be published. The next conference will be held in Spain in 1974.

### Mexico City to host 1972 dental congress

The Fifteenth World Dental Congress of the Fédération Dentaire Internationale will be held in Mexico City October 22-27, 1972.

All dentists who are members of their national associations, those individuals in related professions, dental auxiliary personnel, and others interested in the aims of the dental profession are invited to attend.

A registration or enrolment fee will be required from those attending. To obtain additional information, contact the Fifteenth World Dental Congress, c/o Organizing Committee, Ezequiel Montes 44, Mexico City 4, DF, Mexico.

Congress activities will include a scientific program, which is set up by the FDI; scientific, cultural, industrial and technical exhibits; social events; and tours and excursions. A ladies' program is also planned.

In addition to table clinics and film presentations, the scientific program topics will emphasize preventive dentistry–especially the importance of nutrition. Social events will include a bull fight, the theatre, symphonic concerts, and visits to the pyramids of Teotihuacan.

### Implant course in Paris Nov 22-25

The International Research Centre for Implants in Dentistry has announced a four day limited attendance course in implantology November 22-25, 1971.

The course, to be held at the Lariboisière Hospital, Paris, will cover all the techniques of metallic and biological implantation.

The enrolment fee is payable in two instalments: an immediate deposit of Fr 500.–to reserve admission, and a further payment of Fr 800.–on the first day of the course. Early enrolment is advisable and applications may be sent to Raphael Cherchève, 5 avenue de l'Opéra, Paris, France.

## Dental Education

### Doctor Tuba to retire

Dean James McCutcheon of the Faculty of Dentistry, University of Alberta, has announced the retirement of Jules Tuba who leaves in August after nine years' service as professor of biochemistry. Doctor Tuba first joined the staff of the University of Alberta in 1942 serving in the Department of Biochemistry in the Faculty of Medicine. He joined the dental faculty in 1962.

Doctor Tuba's work has ranged from enzymology with emphasis on enzymes of the gastro-intestinal tract to more recent studies of glycoproteins in saliva. He has published over 70 research papers and contributed to textbooks on enzymology.

Jules Tuba

### Saskatchewan college opens new clinic

The first dental students at the University of Saskatchewan, Saskatoon, have started to work in a new clinic.

The 10 students in the first class have completed predental studies and three years of the undergraduate curriculum. They are now in their final two years of clinical dentistry, including a year of internship, which they must complete before graduating.

The new clinic, temporarily located in a major new addition to the university's Medical Building, will be used

The Netherlands Association of Oral Surgeons recently celebrated its fifteenth anniversary by hosting the Fourth International Conference on Oral Surgery. Terence Ward, England, president of the International Association of Oral Surgeons, (left) looks on as Eric Millar, president of the Canadian Society of Oral Surgeons presents a certificate of congratulations to F. van Dop, president of the Netherlands association on commemorating the anniversary. Also looking on is Paul Chapnick, Toronto, past president of the Ontario Society of Oral Surgeons, one of the Canadians to present a paper at the recent meeting of the IAOS in Amsterdam.

until a permanent clinic is ready in a further large addition planned for the university hospital. The addition to the Medical Building, mainly the fifth and sixth floors, is the permanent home for the rest of the College of Dentistry, which occupied the new quarters earlier this year. When this addition is completed later this year, the structure housing medicine, dentistry and nursing will be renamed the Health Sciences Building.

### New dental training program at U of T

A new dental training program at the Faculty of Dentistry, University of Toronto, will create two openings each year for dentists interested in research in the clinical dental sciences. The curriculum will cover four years including three years devoted to training in research leading to a PhD degree and one clinical year for a diploma in clinical dentistry.

The program will concentrate on basic and clinical sciences related to clinical periodontics and clinical orthodontics.

Funded by the Medical Research Council, it will provide awards equal to those of MRC fellows. Additional funds are available for the support of the research, purchase of necessary equipment and the salary for a new faculty member. Two candidates will join the program each year and at least one will be selected from applicants nominated by Canadian dental schools other than the University of Toronto.

G. S. Beagrie, head of the Division of Clinical Sciences at the Toronto faculty and assistant director of the Division of Postgraduate Dental Education will direct the program.

Applications for 1971-72 must be submitted to the Faculty of Dentistry, University of Toronto, 124 Edward St, Toronto 101, by July 30.

### Montreal's Doctor Lussier visits Haiti as dental education consultant

Jean-Paul Lussier, dean of the Faculty of Dentistry, Université de Montréal, recently went to Haiti on behalf of the World Health Organization.

Doctor Lussier visited the dental faculty at the University of Port-au-Prince to advise in connection with the school's dental education program and the training of dental auxiliaries for service in Haiti.

### *—Continuing education*

The Mount Royal Dental Society has announced that Saul Shluger will conduct a course on "Gingival, Mucogingival and Osseous Surgery for General Practitioners" at the Jewish General Hospital, 3755 St. Catherine Rd, Montreal, October 22-23. The fee for the course is $125. Further information may be obtained by writing to the Secretary, Suite 626, 1414 Drummond St, Montreal 107, Que.

## Economics

### Dean Nikiforuk says government could escalate dental care demand

A leading dental educator has warned Ontario dentists to prepare for greatly increased demands from the public if government subsidizes dental care. Gordon Nikiforuk, dean of the Faculty of Dentistry of the University of Toronto, said the province's dentists can meet present demands for service but are inadequate to match society's unmet needs.

He predicted the demand could escalate dramatically if government removes economic barriers by subsidizing dental care. The profession would be "negligent" if it failed to plan now for this eventuality, he said.

Addressing the 104th annual meeting of the Ontario Dental Association on May 17, Doctor Nikiforuk praised the Ontario health department for locating 35 practitioners in previously underserviced areas. But he expressed alarm that only 5.3 per cent of Ontario dentists employed dental hygienists.

"There will be no dental manpower solution unless we train and use more of the presently available dental auxiliaries such as hygienists, chairside assistants and dental technicians. This triad provides an ample base for the delegation of extended duties under the dentist's effective supervision," he said.

Dean Nikiforuk urged dentists to shed their sense of comfortable isolation which he blamed for the profession's impotence in planning programs to meet approaching economic and manpower challenges. He called for an immediate and substantial dialogue with the government and people of Ontario in order to devise an effective plan for the delivery of dental services. He also urged an early start on the following measures:

Reduction of the dental undergraduate training program from the present four years to three years;

Postgraduate programs in dental hygiene;

Establishment of a dental research centre directed to the prevention of dental caries and periodontal disease;

More full-time dental teachers;

Satellite dental clinics in teaching hospitals and community health centres; and

Expanded graduate programs to train dentists for careers in teaching, research and specialties.

But Doctor Nikiforuk warned his audience that no plan can succeed if we only pay lip service to preventive dentistry. The government, as well as the profession, must clearly understand that preventive dentistry is a vital ingredient of all dental programs.

### Ontario association proposes test for hygienists' and assistants' duties

The Ontario Dental Association has approved in principle a pilot project to test how dental hygienists and assistants with extra training will affect private practice. In addition to their regular duties, the participating hygienists will be allowed to apply rubber dam, place matrix bands, insert and finish amalgam, plastic and composite restorations, insert and finish temporary cement fillings, and take impressions for study casts.

The project is part of a study to improve the delivery of dental care by means of the team approach. Specially trained dental assistants will also participate in the experiment. They will take over some of the duties performed presently by hygienists, such as exposing radiographs, rubber cup prophylaxis and applying anticariogenic agents to teeth.

The ODA plan involves training eight dental hygienists and eight assistants and assigning them to selected private offices throughout the province. A similar study is under way in Prince Edward Island (page 50, February Journal).

### Quebec dental act changes in prospect

Representatives of the Department of Social Affairs and of the public will sit on the Board of Governors of the Quebec College of Dental Surgeons after the present Quebec dental act is revised. The prediction was made March 2 by Quebec Social Affairs Minister Claude Castonguay when he outlined his government's proposals to amend the Quebec dental act.

There will be important changes in disciplinary procedure and in the repression of illegal practice. Control of professional services given by dentists will also be tightened, said Mr. Castonguay.

The Quebec college has formed a special committee to assist Registrar Robert LeBlanc and the college's legal

advisers in presenting the college's views on the proposed changes to the National Assembly's Commission on Social Affairs. Members of the committee are George Dundass, Henri Brouillet, Jean-Paul Couture, Bertrand Lemieux and Lorenzo Picard.

### Quebec college urges compulsory fluoridation, aid to children

The College of Dental Surgeons of the Province of Quebec has joined other provincial groups in calling for compulsory fluoridation.

In a brief submitted to the Commission on Social Affairs of the Quebec National Assembly last January, the college also commended the provincial government for its proposal to provide insured dental health services for children to age seven.

In addition, the college urged that Bill 69 be amended to provide dental treatment for all children of welfare recipients up to age 18.

## Fluoridation

### Newfoundland may offer financial aid for fluoridation

Health Minister Edward Roberts told the Newfoundland legislature April 23 that his government has now reached the point in the fluoridation issue that it is prepared to offer financial assistance to any municipality in the province that wants to fluoridate its water supply.

By taking such action, Newfoundland would become the fourth province – after Nova Scotia, Quebec and New Brunswick – to make such an offer.

Only two Newfoundland municipalities – Corner Brook and Gander – fluoridate their water at present. The capital city of St. John's almost received fluoridation several years ago when there was a tie vote among council members on the issue and the mayor cast the deciding vote not to fluoridate the city's water supply.

### Swedish fluoridation "ban" is only fiction

Sweden has not banned fluoridation as has been recently claimed by some sources.

According to J. A. Ahlberg, executive director of the Swedish Dental Federation, Stockholm, the Swedish National Board of Health and Welfare has not taken action to ban fluoridation. References to a ban were made, he said, by a Swedish opponent of the measure who has been criticized by the board for his statements.

Doctor Ahlberg explained that Swedish law permits communities to request permission for fluoridation from the National Board. As of last year, several communities were expected to join the fluoridation test project in Norrkoping, started in 1952.

The recent reconsideration of fluoridation in Sweden was to decide whether the National Board should change the law to comply with the World Health Organization directive that member countries should actively promote fluoridation. Sweden was one of the 37 countries co-sponsoring the WHO resolution endorsing fluoridation in 1969.

## Public Health

### Elderly lack dental care

Old people in homes for the aged surveyed in Ontario have worse teeth than those living independently in senior citizens' apartments, B. P. Martinello told the Ontario Dental Association May 17.

Doctor Martinello also said that both groups had worse teeth than comparable groups in the United States.

Doctor Martinello is professor and chairman of the Department of Social Dentistry at the University of Western Ontario, London.

He described three surveys carried out since 1969, one in Toronto and two in London, to ascertain the dental situation among older people in the province.

When 491 persons from 55 to 99 years of age were surveyed at the Jewish Home for the Aged, Toronto, 64 per cent were found to lack teeth, compared with only 49 per cent among a similar US group. Nearly 90 per cent were edentulous in either the upper or lower jaw in the Toronto group. Among those 70 to 79 years of age, 83 per cent of the Toronto group were totally edentulous, compared with 62 per cent of the US group. Only 41 per cent had good dentures.

Doctor Martinello said that in 1969 a survey was made of three homes for the aged in London, comparing their 517 residents with 502 elderly people living in senior citizens' apartments.

Among the 517 in homes, 86 per cent had one edentulous arch and 77 per cent were completely edentulous, compared with 85 per cent and 74 per cent among those living independently. However, 66 per cent of the independent people had acceptable upper dentures and 28 per cent had acceptable lower dentures, compared with 49 per cent and 26 per cent of those in the home.

The apartment group also had newer dentures and more of their own teeth left. Thirty-seven per cent of them had visited a dentist within the past five years, compared with only 22 per cent of those in homes.

Doctor Martinello expressed surprise that residents of homes for the aged were worse off, when there were nurses caring for them who might be expected to help them with oral hygiene and encourage them to get dental care. He said "One big stumbling block is money."

### Doctor Lambert named Quebec dental director

J. Lambert, formerly of Cap-de-la-Madeleine, Que, has been named director of the dental hygiene division of the Quebec Department of Social Affairs. Doctor Lambert's appointment fills the two year vacancy which has existed since the death of L. J. Bonneau in January 1969.

## Research

### Article reiterates importance of mercury hygiene

Mercury in amalgam restorations does not pose a serious hazard to patients, says a report in the June 1971 *Journal of the American Dental Association.* But dentists should be aware of the risk of long-term exposure of dental office personnel and contamination of the environment through disposal of waste amalgam.

Penetration of mercury ions through the hard tissues of teeth can be prevented by routinely coating cavity surfaces with a varnish or a base.

Mercury vapour is dangerous when breathed in sufficient concentrations for a long time. Two recent studies have shown levels of mercury vapour concentration in excess of the currently accepted threshold limit value in some dental offices. Several factors contribute to this higher mercury vapour concentration: carelessness, because teaching for years has been based on the premise of little danger; redecoration of offices to include rugs; and the use, without due caution, of mechanical amalgamators, ultrasonic condensers, and high-speed rotary cutting instruments.

For good mercury hygiene, the user should:

Store mercury in unbreakable, tightly sealed containers;

Confine any inadvertent spills to an easily cleaned tray or similar work space;

Design the dental offices with seam-

less flooring that extends two inches up each wall;

Salvage all amalgam scrap (where necessary, by installing appropriate solid waste traps on cuspidors, aspirators and evacuators) and keep it in a tightly covered container;

Work in well-ventilated spaces;

Eliminate the indiscriminate use of mercury-containing solutions;

Avoid the heating of mercury or amalgam;

Use water spray and suction when grinding dental amalgam;

Use conventional dental amalgam compacting procedures, manual and mechanical, but should not use ultrasonic amalgam condensers.

A conventional vacuum cleaner will not pick up spilled mercury from a contaminated surface. The recovery of such material is best carried out with suction immediately after the spill, before any additional dispersal of droplets. The existing oral evacuation equipment can be temporarily modified with an extension to a vessel containing some water and serving as a trap. A short tube bearing a tip similar to a medicine dropper should lead to the water trap. The small opening on the tip is held to each droplet to be aspirated into the trap. Most of the spill can be recovered in this manner. Droplets that cannot be reached without causing an intolerable upheaval should be dusted with sulphur powder or covered with a water slurry of sulphur and calcium oxide. The sulphide layer will prevent vaporization as long as the droplets are not agitated. Rugs that have become grossly contaminated by repeated spills should be replaced by a smooth surface floor covering.

Some capsules used with mechanical amalgamation permit the discharge of fine droplets of mercury during mixing. The recently introduced threaded capsules and pre-proportioned sealed capsules are excellent for containing the mercury during mechanical mixing.

### Five groups ruled out for dental implants

Alcoholics, emotionally unstable persons and those who suffer from bruxism should not have implant dentures, an oral surgeon told the Ontario Dental Association May 18.

A. Norman Cranin, director of dental and oral surgery at Brookdale Hospital Centre, Brooklyn, NY, said there are two other groups who should not have implants.

One is made up of people who dislike foreign bodies in their mouths; the other consists of people who get used to gaps in their teeth and miss the gaps if they are filled.

The implants will last for 13.7 years, but they cannot be judged successful just because there is no problem at the time of surgery.

Doctor Cranin said if patients have suffered no major complaints like pain, swelling or bleeding five years after the implant, the procedure can be considered successful.

### TMJ syndrome blamed on psychosomatic causes

A dentist and a psychologist at the University of Southern California, Los Angeles, appear to have exploded traditional theories about the causes of bruxism and disorders which result from bruxism.

Sylvan Schireson, professor of periodontology, USC School of Dentistry, and Lloyd Thomas, USC assistant professor of psychology, recently studied 10 patients suffering from TMJ (temporomandibular joint) syndrome.

According to Doctor Thomas, "Traditional theory says that the syndrome results from clenching the teeth in response to anxiety. We wanted to test this theory by seeing what kind of stress — anxiety or frustration — makes people clench their teeth."

First, the two researchers subjected their patients to anxiety by warning them that they would get electric shocks, and then shocking them with electrodes.

"We determined their level of anxiety by observing increased fidgeting and respiration during the experiments, and by their post-experimental verbal reports," said Doctor Thomas. "We also attached electrodes to their jaws to measure the contraction of jaw muscles. But we found that anxiety didn't make them clench or grind their teeth.

"This contradicted the widely-held theory that anxiety causes bruxism.

"We then interviewed the patients, and they said frustration made them grind their teeth. Therefore, we subjected them to frustration by giving them a wooden board full of geometrically-designed holes, into which they had to fit wooden pieces designed for the holes. We harrassed them throughout the experiment, and would not allow them to fit the pieces into the board.

"Under these conditions of frustration, the electrode measurements showed that bruxism took place," Doctor Thomas said.

He added that the experimenters' three final findings were:

1. Persons suffering from the TMJ syndrome clenched their teeth more frequently than did persons not suffering from the syndrome. TMJ patients seem to have a particular pattern of response to frustration which involved bruxism.

2. When they did clench their teeth under frustration, TMJ patients did so more strongly than non-TMJ patients.

3. Under conditions of frustration, TMJ patients showed tension "longer, stronger, and more often" than did non-TMJ patients.

"One of the traditional theories of the syndrome," Doctor Schireson said, "is that it is a mechanical problem, caused by improper occlusion. Our findings were that the problem is more psychosomatic than mechanical."

Doctor Thomas said, "In treating TMJ patients, dentists should not necessarily alter the occlusion of the patient. They should teach him to relax. They might rest the patient's jaws by a soft diet. They could disengage his jaws with night guards or intermaxillary splints.

"We found that, when patients immediately learned of their tensional responses, they also learned self-control. Patients could be taught muscular relaxation in a stress situation."

### Alberta faculty receives MRC grant

The Medical Research Council has awarded the Faculty of Dentistry, University of Alberta, a development grant to assist in establishing a research group within the Department of Oral Biology. The proposed team will concentrate on studies of calcified tissues within the oral cavity. The process by which certain tissues become calcified and the role of collagen in normal and abnormal calcification will receive special attention from the group.

The grant of approximately $100,000 will provide a portion of operational capital expenses as well as salary for a senior research associate for a three year period. The research associate will work with Doctors Jules Tuba, D. J. Carmichael and C. F. Nawrot for the study.

## Deaths

Baird, William Forbes. 78. Carleton Place, Ont. Royal College of Dental Surgeons of Ontario, 1915. 28-4-71. Survived by Jennie (wife); William (son); Wilfred Hoddinott (stepson); and Mrs. Marilyn Meldrum and Mrs. Jean Waller (stepdaughters).

Coons, Dwight S. 74. Boca Raton, Fla, USA. Royal College of Dental Surgeons of Ontario, 1923. 3-6-71. Survived by Alice (wife); Doctor D. Owen (son); Mary-Lou and Beverly S. (daughters); Donald (brother); Doris (sister); and five grandchildren.

Dalton, Ormond Edward. 59. Summerside, PEI. Dalhousie University, 1948. 10-5-71. Survived by Rena (wife); John (son); and Mrs. J. E. Dalton (stepmother).

## Le Congrès national

### Dispositions concernant l'inscription et les frais au Congrès

Le Comité du Congrès vient d'annoncer les dispositions régissant les frais et l'inscription au Congrès national de l'ADC à Ottawa du 30 septembre au 2 octobre. L'inscription sera de $30 pour les dentistes. La participation au programme des dames est fixée à $10, les billets pour la Soirée du Président, le vendredi 1er octobre, à $10 par personne.

Tous les dentistes, qu'ils soient canadiens ou venant de l'extérieur, ainsi que tous les conférenciers membres de l'ADC peuvent payer intégralement les frais d'inscription et se procurer les billets pour les activités sociales auxquelles ils veulent participer.

L'inscription et les activités sociales sont gratuites pour les invités étrangers et les membres honoraires de l'ADC ainsi que leurs épouses.

Les conférenciers qui ne sont pas membres de l'ADC, les membres étudiants de l'ADC et les délégués canadiens ne faisant pas partie de la profession bénéficient de l'inscription gratuite mais peuvent acheter les billets requis pour les activités sociales.

Les étudiants qui ne sont pas membres de l'ADC paient une inscription de $5 et peuvent se procurer les billets du programme social. En plus, ces frais d'inscription les font bénéficier de l'affiliation à l'ADC en qualité d'étudiant pour l'année 1971-72.

L'inscription est gratuite pour les hygiénistes et assistantes dentaires et pour les exposants, mais ceci ne comprend pas la participation au programme social.

L'ADC a réservé une vaste section de sièges au Centre National des Arts pour le jeudi soir 30 septembre. On se procurera les billets au guichet, dans la limite des places disponibles.

### Réunion de deux jours pour l'Académie de prothèse dentaire

L'Académie canadienne de prothèse dentaire se réunira les samedi et dimanche, 25 et 26 septembre, à l'Hôtel Skyline d'Ottawa, avant le Congrès national de l'ADC.

Onze éminents prothésistes américains y traiteront les sujets suivants: "Evolution des concepts de la dimension verticale et de la relation en occlusion centrique" (S. I. Silverman, New York); "Diagnostic buccal" (A. L. Martone, Norfolk, Virginie); "Les prothèses complètes transitoires" (R. W. Elliot Jr, Bethesda, Maryland); "Variables biologiques de l'occlusion chez le porteur de prothèse complète" (H. Sherman, New York); "Le pont conçu pour maîtriser la plaque" (H. Schwartz, New York); "Ponts et couronnes: concepts nouveaux" (R. G. Granger, Bethesda, Maryland); "Principes de base dans la préparation des ponts et couronnes" (H. Litvak, New York); "Attachement interne" (J. C. Lee, New York); "Procédés transitoires pour réaliser un meilleur traitement au moyen de ponts ou couronnes" (P. J. Krevitt, New York).

De plus, les Drs M. Belsky, de New Brunswick, New Jersey, et N. A. Giuditta, de Westfield, New Jersey, dirigeront une discussion sur les préparations de couronnes intitulée "Epaulement et chanfrein".

Le programme scientifique est dirigé par le Dr J. Fiset de Montréal. Pour tout renseignement supplémentaire, écrire à W. G. Woods, Suite 1125, 123 Edward St, Toronto 101, Ont.

## Le Canada

### Le Québec: capitale du rachitisme en Amérique du Nord

La province de Québec est "la capitale du rachitisme en Amérique du Nord", selon le Dr Charles Scriver du Montreal Children's Hospital. Le rachitisme coûte au moins $500,000 au gouvernement provincial et chaque année touche plus de 400 enfants au-dessous de deux ans.

Les laiteries pourraient très simplement éliminer cette maladie en ajoutant 200 unités de vitamine D à chaque pinte de lait non écrémé. Le coût serait de un cent pour trois pintes.

Les enfants québécois ont besoin de beaucoup de vitamine D à cause des longs mois d'hiver pendant lesquels le soleil est rare. Mais dans la ville de Burlington, au Vermont, il n'y a pas eu un cas de rachitisme depuis 10 ans.

L'Association des pédiatres du Québec a envoyé une lettre à M. Claude Castonguay, ministre des Affaires sociales, pour l'informer du problème qui existe.

### Prix offerts par l'ADC aux jeunes scientifiques

Jane Lois Douglas, 17 ans, étudiante de 11e année de Belleville (Ont) et Brian Maki, 15 ans, étudiant de 10e année de Victoria, ont remporté les deux prix offerts par l'Association Dentaire Canadienne lors de la 10e exposition scientifique nationale, qui a eu lieu à l'Université de l'Alberta à Edmonton du 11 au 15 mai. Les gagnants ont été choisis au nom de l'ADC par G. H. Sperber d'Edmonton.

L'Association Dentaire Canadienne participe aux réalisations de la Fondation Sciences Jeunesse qui cherche à promouvoir les activités scientifiques parascolaires et organise cette exposition annuelle. Outre les prix de $100 en espèces, l'ADC offre d'aider les lauréats à trouver du matériel de recherche pour leurs futurs projets.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 mai 1971:

*Fonds à revenu fixe* $11.680;

*Fonds d'actions ordinaires* $23.610.

L'avoir total (valeur marchande) du régime se montait à $10,587,042.29.

Au cours du mois précédent, les transactions, achats et ventes, ont été les suivantes: achat 1,000 actions de Noranda Mines, 2,000 actions de Consolidated Foods, 1,000 actions de Alcan Ltd, 1,000 actions de Jim Walter Corp, 1,800 actions de Maclean Hunter Publishing, 5,000 actions de Banque royale du Canada, 2,000 actions de Hiram Walker, 10,000 actions de John Labatt, et 3,000 actions de Acquitaine; vente 2,000 actions de American Express et 262 actions de IBM.

Le paragraphe 79B de la loi régissant l'impôt sur le revenu autorise des contributions non imposables à un programme de retraite personnelle, représentant jusqu'à 20 p.c. du revenu, avec un maximum de $2,500.

La Compagnie Trust Royal, qui gère le Régime d'épargne-retraite de l'ADC offre deux sortes de placements distincts: un fonds à revenu fixe et un fonds d'actions ordinaires. Les contributions peuvent être faites entièrement ou en partie au(x) fonds que choisit le

contributeur. Il peut faire des transferts entre les fonds sans payer d'amendes.

Le fonds à revenu fixe, qui se compose de bons du trésor, d'obligations, d'actions privilégiées et d'autres sécurités à revenu fixe, offre un très bon revenu avec un risque très faible. Le fonds d'actions ordinaires, qui se compose d'actions ordinaires canadiennes, américaines et étrangères soigneusement choisies, a comme objectif principal l'augmentation du capital.

L'adhésion au programme ou le retrait n'entraîne aucun paiement supplémentaire, ni commission.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Chronique internationale

### Cours d'implantologie en novembre à Paris

Le Centre international de recherches implantaires en odontologie-stomatologie annonce que son cours annuel d'implantologie aura lieu du 22 au 25 novembre 1971 à l'Hôpital Lariboisière à Paris.

Ce cours enseigne toutes les techniques implantaires métalliques et biologiques.

Les frais sont payables en deux fois, soit un dépôt de 500 F pour réserver sa place et un complément de 800 F le jour de l'ouverture du cours. Le nombre des participants étant limité, il est recommandé de s'inscrire le plus tôt possible auprès du Dr R. Cherchève, 5 avenue de l'Opéra, Paris, 1er, France.

## Les organismes dentaires

### Le Bureau de l'ADO réaffirme son appui à l'affiliation volontaire

Le Bureau des Gouverneurs de l'Association Dentaire de l'Ontario, qui s'est réuni les 14 et 15 mai, a réaffirmé son appui au principe de l'affiliation individuelle volontaire et conjointe aux organismes dentaires locaux, provinciaux et national. Le Bureau a aussi décidé de percevoir les droits de l'affiliation conjointe des dentistes ontariens lorsque celle-ci entrerait en vigueur dans la province. La cotisation pourrait être répartie entre l'Association Dentaire Canadienne, l'Association Dentaire de l'Ontario et les sociétés locales qui la composent.

Par ailleurs, les gouverneurs ont:

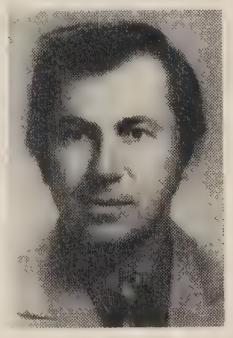
Appris que le Collège royal des chirurgiens-dentistes de l'Ontario accepte de transférer à l'ADO sa propriété sise au 230 rue St-George à Toronto, pour la somme de $1;

Demandé la création d'un projet modèle destiné à étudier la possibilité d'établir des dispensaires de prothèses en Ontario; et enfin,

Recommandé d'explorer concurremment d'autres moyens, y compris les cabinets privés, de fournir les services de prothèses aux groupes économiquement faibles.

### J.-L. Bertrand devient président de la Société Dentaire de Québec

Le 3 mai dernier avait lieu l'élection des nouveaux administrateurs de la Société Dentaire de Québec. Le Dr Jean-Louis Bertrand a été élu président en remplacement du Dr Gérard Houle. Les membres de l'exécutif sont les docteurs Pierre Marchand, Marcel Demers, Conrad Audy, Roland Vallée, Amyot Langlois, Bernard Trépanier, Jean-Guy Binet et Claude Bussières.



J.-L. Bertrand

L'élection avait été précédée d'une journée d'étude à l'Université Laval durant laquelle le Dr Jean Turgeon, chef du département de périodontie à l'Université de Montréal, a présenté une causerie sur la périodontie, traitant tout particulièrement des problèmes de l'articulation temporo-mandibulaire et du balancement de l'occlusion.

Des plaques-souvenirs ont été remises au cours de la soirée aux docteurs Louis Bernier, Léo-Paul Dubé, P. S. Tessier, pour commémorer leurs 25 années de pratique dentaire, ainsi qu'au Dr Gérard Houle en témoignage de reconnaissance pour ses services en tant que président de la Société Dentaire de Québec pour l'année écoulée.

## L'enseignement dentaire

### Le Dr Lussier en Haïti

Le Dr Jean-Paul Lussier, doyen de la Faculté de chirurgie dentaire, a visité Haïti où, envoyé par l'Organisation mondiale de la santé, il a accompli une mission concernant le programme d'enseignement à la Faculté d'odontologie à l'Université de Port-au-Prince et sur sa participation éventuelle à la formation des auxiliaires dentaires requis dans ce pays.

### Attribution des bourses du FCED aux étudiantes en hygiène dentaire

Les premières bourses du FCED aux étudiantes de première année en hygiène dentaire viennent d'être décernées. Les bénéficiaires en sont: Evelyn Johnston (de Vancouver), de l'Université de la Colombie-Britannique; Barbara Coyle (de Regina, Sask) et Shauna Sullivan (d'Edmonton), ex-aequo de l'Université de l'Alberta; Susan Haglund (de Winnipeg), de l'Université du Manitoba; et Mary Blake (de Charlo, N-B), de l'Université Dalhousie.

Ces bourses ont été créées en 1970 par le Fonds canadien pour l'enseignement dentaire conjointement avec l'Association canadienne des hygiénistes dentaires. Une bourse sera attribuée chaque année et dans chaque université canadienne formant des hygiénistes, à une étudiante de première année choisie pour l'excellence de son travail et sa participation active aux activités étudiantes. Les bénéficiaires sont désignées par le comité des prix de chaque école.

Les fonds pour ces bourses sont fournis par des hygiénistes en exercice, l'Association canadienne des hygiénistes dentaires, les sociétés locales d'hygiénistes, la compagnie Procter & Gamble et le FCED.

## Congrès provinciaux

### Les Journées dentaires du Québec: un succès retentissant

L'organisateur des Journées dentaires du Québec, le Dr Claude Chicoine, a indiqué que 970 personnes ont participé au congrès provincial et que 2,931 personnes ont franchi l'entrée de la salle des exposants les 6 et 7 mai à l'Hôtel Bonaventure.

Le programme scientifique a débuté par un panel sur les couronnes et ponts avec la participation des docteurs Marcel Hébert, Morton Perel, Harvey Wiener, R. Nadeau, Claude Durand et Me C. Quidoz.

Le programme a ensuite présenté le traitement complet d'une patiente nécessitant un pont. Les docteurs Louis-Philippe Lemay et Ronald Jones ont alterné leurs présentations qui se sont faites dans les deux langues.

Le Conseil d'administration de l'Association des Chirurgiens-Dentistes du Québec s'est réuni à Montréal le 5 mai. On reconnaît, dans la photo à gauche, le Dr Roger Grégoire; Mlle Francyne Beaudoin, économiste; et le président, le Dr Hubert La Belle; dans la photo à droite, le Dr La Belle; le président d'assemblée, le Dr Paul Lacoursière; et le 1er vice-président, le Dr Georges Lepage.

Le Dr J. Valiquette a mis les congressistes à jour sur les prothèses complètes. Les tables cliniques complètaient le programme.

Parmi les invités d'honneur on remarquait le président de l'Association Dentaire Canadienne, le Dr W. Spence; le rédacteur en chef du Journal de l'ADC, le Dr Frank Compton; le président sortant de l'Association Dentaire de l'Ontario, le Dr Ivan Hrabowsky; le nouveau président de l'ODA, le Dr L. J. Schiller; le président de l'Association Dentaire du Nouveau-Brunswick, le Dr Georges Cormier; le Dr Marcel Archambault, président du CCDPQ ainsi que le Dr Robert LeBlanc, régistraire.

Le voyage à Amsterdam et Paris offert par KLM a été gagné par un gouverneur du Collège (et président du comité d'éducation permanente), le Dr Paul Dionne, de Joliette.

## L'économie

### Le bill 69 est adopté

L'Assemblée nationale a adopté le 11 juin à l'unanimité le projet de loi 69 dont les deux principaux effets sont de permettre la couverture des soins dentaires pour les enfants de sept ans et moins et le coût des médicaments pour les assistés sociaux par la Régie de l'Assurance-maladie du Québec.

Lors de l'étude de cette mesure législative en comité plénier, le ministre des Affaires sociales, M. Claude Castonguay, a précisé que 540,000 jeunes Québécois formeront la première génération québécoise à vivre selon les normes généralement admises d'hygiène dentaire, chose très rare jusqu'à maintenant au Québec.

La mesure pourra éventuellement s'étendre à d'autres catégories d'âges, selon les disponibilités professionnelles et financières. Globalement, ce programme devrait coûter environ $5 millions, dont la moitié sera assumée par le gouvernement fédéral, en vertu d'ententes déjà négociées entre Ottawa et les provinces.

Quant aux personnes recevant présentement des prestations sociales de toutes sortes, le bill 69 mettra fin à une foule de tracasseries administratives qui avaient un caractère discriminatoire.

De plus, a souligné le ministre des Affaires sociales, on n'aura plus à déplorer le fait que ces personnes sortent du bureau d'un médecin où elles ont été traitées gratuitement sans avoir les moyens de payer les ordonnances prescrites.

Par ailleurs, au cours de l'étude du projet de loi, M. Castonguay a annoncé que les différents projets de loi touchant les professionnels de la santé seront déposés à l'Assemblée nationale avant l'ajournement d'été pour être immédiatement référés à la Commission parlementaire où les intéressés pourront faire valoir leur point de vue.

### Refonte de la loi dentaire du Québec

Des représentants du Ministère des Affaires sociales et du public siègeront au Bureau des Gouverneurs du Collège des chirurgiens-dentistes du Québec. C'est ce que prévoyait, le 2 mars, le ministre des Affaires sociales du Québec, M. Claude Castonguay, en dévoilant en partie les modifications que son gouvernement veut apporter à la loi dentaire du Québec.

La procédure disciplinaire et la répression de la pratique illégale seront remaniées. Le contrôle des actes professionnels dispensés par les dentistes sera resserré, a déclaré M. Castonguay.

Le Collège a formé un comité spécial qui aidera ses conseillers juridiques et le registraire, le Dr Robert LeBlanc, à exposer à la Commission parlementaire des Affaires sociales de l'Assemblée nationale les vues du collège sur les changements proposés. Ce comité est formé des Drs George Dundass, Henri Brouillet, Jean-Paul Couture, Bertrand Lemieux et Lorenzo Picard.

### Le Collège du Québec recommande la fluoration obligatoire et l'assurance pour les enfants

Le Collège des chirurgiens-dentistes de la Province de Québec s'est joint à d'autres groupes provinciaux pour proposer de rendre la fluoration obligatoire.

Dans un mémoire soumis à la Commission parlementaire des Affaires sociales de l'Assemblée nationale en janvier dernier, le collège a aussi approuvé la proposition du gouvernement provincial d'assurer les soins dentaires pour les enfants jusqu'à l'âge de sept ans.

Le collège a de plus recommandé de modifier le projet de loi 69 afin qu'il prévoie les soins dentaires pour tous les enfants des assistés sociaux jusqu'à l'âge de 18 ans.

### ACDQ: première étude économique

Une première étude sur "L'économie des soins dentaires: connaissances acquises" a été effectuée à la demande de l'Association des Chirurgiens-Dentistes du Québec. Selon le président de l'ACDQ, le Dr Hubert LaBelle, ce travail pourra refléter plus exactement l'état de la profession au Québec et aussi en rapport avec le reste du Canada et les autres pays.

Les recherches ont été accomplies par M. François Lacasse tandis que le Collège des Chirurgiens-Dentistes de la Province de Québec a accordé son appui financier afin d'en permettre la réalisation.

En remettant une copie du rapport au président du Collège, le Dr Marcel Archambault, à l'occasion des Journées dentaires du Québec, le Dr La-Belle a souligné l'esprit de coopération intense qui existe maintenant entre les deux organismes provinciaux.

Pour sa part, le Dr Archambault a remis à l'ACDQ un chèque de $3,500 pour défrayer en partie le coût des Journées dentaires du Québec qui avaient été organisées sous le signe

de l'éducation permanente. Le registre d'assistance a indiqué que 448 chirurgiens-dentistes étaient inscrits.

### Le Montreal Dental Club réclame la suppression de certaines subventions fédérales

Le Montreal Dental Club a demandé au Ministre de la Santé nationale, M. John Munro, de ne plus accorder de subsides fédéraux pour l'extraction des dents ayant fait éruption.

Actuellement, la Loi de l'assurance-maladie du Canada autorise le paiement aux dentistes pour les actes de chirurgie buccale effectués dans un hôpital et qui sont requis par l'état général du malade. Lors de sa réunion annuelle de 1970, le Bureau des Gouverneurs de l'ADC avait déjà décidé de demander au gouvernement fédéral de supprimer la stipulation du milieu hospitalier. Tous les 10 membres corporatifs ont depuis lors appuyé cette décision, entièrement ou conditionnellement.

Dans un mémoire soumis à M. Munro le 29 avril, le Montreal Dental Club remarque que selon lui le fait de supprimer la stipulation du milieu hospitalier annullerait automatiquement la condition de l'état général du malade et augmenterait donc le nombre des traitements de chirurgie buccale subventionnés dans les hôpitaux et les cabinets privés.

Supprimer la restriction du milieu hospitalier susciterait dans les cabinets privés une priorité sans précédent pour la chirurgie buccale, qui pourrait avoir un effet dévastateur sur les efforts déployés à présent et à l'avenir pour améliorer la santé dentaire totale du public canadien. Cette mesure aurait un effet néfaste sur l'éducation à l'hygiène dentaire et contrecarrerait l'action des dentistes qui essaient de convaincre leurs patients des avantages de conserver leurs dents naturelles, déclare le mémoire.

### Le gouvernement risque de faire gonfler la demande de soins

Une éminente personnalité universitaire a averti les dentistes de l'Ontario qu'ils devront se préparer à un vaste accroissement de la demande de la part de la population si le gouvernement décide de subventionner les soins dentaires. Le Dr G. Nikiforuk, doyen de la Faculté de chirurgie dentaire de l'Université de Toronto, a déclaré que les dentistes de la province peuvent faire face à la demande actuelle mais que leur nombre ne suffirait pas à répondre aux besoins globaux du public.

Il a prédit que la demande connaîtrait une escalade spectaculaire si l'aide du gouvernement supprimait les obstacles économiques. La profession serait coupable de "négligence" si elle ne se préparait pas actuellement à une telle éventualité.

Le 17 mai, lors de la 104e réunion annuelle de l'Association Dentaire de l'Ontario, le Dr Nikiforuk a félicité le Ministère de la Santé de l'Ontario d'avoir aidé 35 praticiens à s'installer dans des régions mal desservies. Mais il s'est alarmé du fait que 5.3 p.c. seulement des dentistes ontariens emploient des hygiénistes dentaires.

Il n'y aura pas de solution au problème des effectifs dentaires, a-t-il dit, si nous ne formons et n'employons pas un plus grand nombre des auxiliaires disponibles tels que les hygiénistes, les assistantes et les techniciens dentaires. Ce sont trois groupes amplement suffisants auxquels la profession peut déléguer des tâches élargies sous la surveillance effective du dentiste.

Le doyen Nikiforuk a recommandé aux dentistes de se départir de leur sentiment d'isolement douillet qui rend la profession incapable d'élaborer des projets pour faire face aux futurs problèmes d'économie et de main-d'oeuvre Il a demandé un dialogue immédiat et approfondi avec le gouvernement et la population de l'Ontario afin de mettre sur pied un régime efficace pour la dispensation des services dentaires. Il a également demandé de hâter l'application des mesures suivantes:

Réduction des études dentaires de quatre à trois ans;

Création de programmes postuniversitaires en hygiène dentaire;

Fondation d'un centre de recherches dentaires spécialisé dans la prévention de la carie et de la maladie péridentaire;

Formation d'un plus grand nombre de professeurs à plein temps;

Création de dispensaires dentaires attachés aux hôpitaux universitaires et aux centres communautaires de santé;

Développement des programmes postuniversitaires conduisant aux carrières dans l'enseignement, la recherche et les spécialités.

Mais le Dr Nikiforuk a bien fait remarquer qu'aucun projet ne peut réussir si nous ne démontrons pas notre sincérité au sujet de la dentisterie préventive. Le gouvernement et la profession doivent bien comprendre que la dentisterie préventive est un élément essentiel de tout programme dentaire.

### Ontario: étude pratique sur la délégation de tâches aux hygiénistes et assistantes

L'Association Dentaire de l'Ontario a approuvé en principe un projet pilote visant à évaluer l'effet sur le cabinet dentaire privé de la délégation de tâches à des hygiénistes et assistantes dentaires qui auraient reçu une formation supplémentaire. Outre leurs fonctions habituelles, ces hygiénistes seront autorisées à placer la digue de caoutchouc et les matrices, condenser et finir les obturations à l'amalgame, au plastique et aux composites, mettre en place les ciments provisoires et prendre les empreintes pour les modèles d'étude.

Le projet fait partie d'une étude sur les moyens d'améliorer la dispensation des soins dentaires par le travail en équipe. Des assistantes spécialement formées prendont aussi part à l'expérience. Elles assumeront certaines des tâches actuellement dévolues aux hygiénistes, comme l'exposition des radiographies, la prophylaxie à l'aide de cupules de caoutchouc et l'application de substances anticariogènes.

Huit hygiénistes et huit assistantes seront formées et placées dans des cabinets répartis dans toute la province. L'Ile-du-Prince-Edouard a entrepris une étude semblable (No de février du Journal, p 50).

### Le Michigan propose un nouveau statut pour les assistantes

Le conseil d'administration de l'Association Dentaire du Michigan a proposé de modifier la loi dentaire de cet état pour y inclure les fonctions élargies de l'hygiéniste dentaire et la création de la profession d'assistante dentaire pour ceux ou celles qui remplissent les conditions exigées.

L'assistance dentaire autorisée recevrait une formation théorique qui lui permettrait d'effectuer certains services en dentisterie opératoire. Elle pourrait placer, condenser et compléter le contour des obturations dans des cavités préparées par le dentiste, placer et ôter la digue de caoutchouc, prendre les empreintes pour les modèles d'étude et remplir d'autres fonctions à la mesure de ses capacités et de sa formation.

## L'hygiène publique

### Le Québec prépare un réseau de centres de santé

Le Québec est en train de se doter d'un réseau de centres communautaires de santé qui couvrira toute la province.. et auxquels les citoyens s'adresseront pour leurs premiers besoins en matière de services sociaux et de santé.

Le ministre des Affaires sociales, M. Claude Castonguay, a expliqué le 22 avril devant l'Association canadienne de l'hygiène publique, que les centres seraient de type différent selon la communauté à laquelle ils seraient

destinés. Ils pourraient fournir les services de consultation médicale et psycho-sociale, les soins dentaires, les services de diagnostic et de laboratoire, les services sociaux et d'hygiène à la mère et à l'enfant.

Deux centres sont déjà en voie de développement, l'un à Asbestos, l'autre dans le quartier de Saint-Henri à Montréal.

### Le Dr Lambert devient directeur de l'hygiène dentaire du Québec

Le Dr J. Lambert, du Cap-de-la-Madeleine, Qué, a été nommé directeur de la division de l'hygiène dentaire du Ministère des Affaires sociales du Québec. Le Dr Lambert succède à L. J. Bonneau, décédé en janvier 1969 et dont le poste était resté vacant.

## La fluoration

### Terre-Neuve pourrait subventionner la fluoration

Le ministre de la Santé, M. Edward Roberts, a déclaré le 23 avril devant le parlement de Terre-Neuve que son gouvernement était désormais prêt à offrir une aide financière aux municipalités de la province désireuses de fluorer leur service d'eau.

Terre-Neuve deviendrait la quatrième province — après la Nouvelle-Ecosse, le Québec et le Nouveau-Brunswick à offrir cette subvention.

Corner Brook et Gander sont les deux seules municipalités de Terre-Neuve qui fluorent leur eau actuellement. Saint-Jean, la capitale, faillit recevoir la fluoration il y a quelques années, lorsque les conseillers municipaux étant divisés en deux groupes égaux, le maire trancha la question en votant contre la mesure.

## La recherche

### L'Association internationale de recherche reçoit 874 rapports

Lors d'une réunion qui s'est terminée le 21 mars à Chicago, l'Association internationale pour la recherche dentaire a examiné 874 rapports scientifiques, chiffre record. Les sujets débattus touchaient à l'enregistrement des observations médicales et dentaires au moyen d'ordinateurs, une nouvelle matière obturatrice, aux nouvelles méthodes d'identification des bactéries buccales et au dépistage précoce de la carie initiale.

Le capitaine Kirk Hoerman du US Naval Dental Research Institute de Great Lakes (Illinois) a expliqué comment les mini-ordinateurs pouvaient servir à enregistrer les observations dentaires d'un patient.

L'ordinateur effectuerait une entrevue de 15 minutes pendant laquelle le patient répondrait à des questions apparaissant sur un écran de télévision. L'ordinateur permettrait au dentiste d'enregistrer de façon concise sur bande magnétique les observations dentaires nécessaires et de les conserver pour usage ultérieur.

#### *Fiche dentaire à l'aide de l'ordinateur*

D'après le capitaine Hoerman, un système semblable peut être employé pour établir la fiche dentaire d'un patient.

L'ordinateur fait apparaître une feuille d'observation dentaire sur l'écran de télévision. Lorsque le dentiste a examiné le patient, il dicte les symptômes pathologiques et l'emplacement des lésions carieuses à l'aide d'un micro miniature porté autour du cou. L'ordinateur enregistre les paroles du dentiste qu'il transcrit dans le dossier du patient.

Le capitaine Hoerman ajoute que le travail sur cet emploi de l'ordinateur en art dentaire est tout récent et qu'à l'avenir, un groupe de dentistes pourrait se servir d'un même ordinateur, et réduire ainsi les moments précieux passés à établir et conserver les observations et les dossiers de leurs patients.

#### *L'or améliore l'amalgame*

Un peu d'or améliore fortement la résistance à la traction et la durabilité des obturations classiques à l'amalgame d'argent, a déclaré le Dr L. B. Johnson Jr., de la Virginia Commonwealth University. Les épreuves de laboratoire montrent que le nouvel alliage résiste plus à la corrosion et risque moins de fluer sous l'effet de la pression.

Selon une explication possible, le rôle de l'or serait de maintenir des espaces entre les atomes dans le réseau cristallin. On suppose que les atomes de mercure et d'étain fusionneraient plus vite grâce aux ouvertures créées par l'or. En un temps relativement court, les deux solutions deviendraient donc une seule.

#### *Un nouveau moyen d'identifier les bactéries*

Le Dr Sigmund S. Socransky du Forsyth Dental Centre de Boston, a déclaré lors de la réunion que de nouvelles techniques de laboratoire permettent de récupérer presque tous les microbes présents dans la cavité buccale. On pourra ainsi mieux identifier les bactéries spécifiques qui engendrent la carie et la maladie périodontique.

Les nouvelles techniques consistent à cultiver des échantillons de plaque bactérienne dans diverses conditions et à employer de nouvelles méthodes pour disperser les amas de microbes. Les résultats indiquent que l'on ne peut pas employer un seul milieu de culture pour isoler les diverses variétés de microbes qui se développent dans la plaque. On a observé que certains ne se développent qu'en présence d'oxygène, tandis que d'autres ont besoin d'oxygène et d'anhydride carbonique.

#### *La détection précoce des caries*

Lors de la réunion, deux chercheurs dentaires de Loma Linda (Californie) ont expliqué que le ralentissement du mouvement du liquide interne des dents, qui est provoqué par un régime très sucré, peut être l'indice précoce de l'apparition future de la carie.

Les Drs R. R. Steinman et John Leonora ont déclaré que l'on avait longtemps cru que la dent était inactive. Une technique mise au point pour étudier le mouvement des liquides dans les grands organes tels que les reins leur a permis d'observer le déplacement du liquide dentinaire de la pulpe vers l'émail à travers des canaux minuscules dans la dentine.

Les travaux précédents des deux savants avaient démontré l'existence de stimuli hormonaux qui affectent l'importance du flux dentinaire. Le premier stimulus est un corps chimique libéré par l'hypothalamus qui atteint la glande parotide et y provoque la libération d'une seconde hormone. Celle-ci atteint la dent et augmente l'importance du mouvement de liquide.

Selon ces auteurs, un régime très sucré dérange l'équilibre hormonal et finit par réduire le flux de liquide. La dent est plus vulnérable à la carie lorsque le mouvement de liquide est réduit. Les chercheurs déclarent que les dents saines dont le flux dentinaire est normal sont invulnérable aux micro-organismes cariogènes qui sont toujours présents dans la bouche.

#### *Le laser renforcit l'émail*

D'autres rapports présentés à la réunion révèlent que:

– Un traitement des dents à l'aide du laser pourrait prévenir la carie en durcissant l'émail comme un vernis;

– Il est possible de réduire radicalement les caries chez les patients subissant un traitement orthodontique en mélangeant une solution de fluor à 10 p.c. au ciment utilisé sur les bagues;

– Les nourrissons que l'on a laissé utiliser une sucette après le sevrage ont moins tendance à sucer leur pouce;

– Une technique pour implanter des dents de plastique en employant de l'os décalcifié a été expérimentée avec succès chez les singes.

# Lamina dura and other metabolic changes in hyperparathyroidism

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**Halifax**

*This review of the records of 29 patients with actual or suspected hyperparathyroidism shows that urinary calculi and absence of the lamina dura are a common, though not invariable, occurrence. Resorptive changes in the lamina dura, when accompanied by consistent hypercalcaemia, are indicative of primary hyperparathyroidism; when accompanied by a cotton wool appearance of the alveolar process, they point to secondary hyperparathyroidism. Patients with renal calculi who do not exhibit hypercalcaemia or any of the osseous changes likely do not have hyperparathyroidism.*

*L'examen des dossiers de 29 patients atteints d'hyperparathyroïdisme confirmé ou soupçonné indique que les calculs urinaires et l'absence de la corticale alvéolaire interne sont fréquents mais non constants chez ces malades. La résorption de la lamina dura, lorsqu'elle est accompagnée d'hypercalcémie régulière, indique un hyperparathyroïdisme primaire; lorsqu'elle est accompagnée d'un procès alvéolaire avant l'aspect de coton hydrophile, elle indique un hyperparathyroïdisme secondaire. Les patients atteints de calculs rénaux qui ne présentent ni hypercalcémie ni ces modifications osseuses ne souffrent probablement pas d'hyperparathyroïdisme.*

This paper describes an investigation to assess the reliability of lamina dura resorption as an indicator of hyperparathyroidism.

## Investigation

Our project was carried out during the summer of 1969 at the Victoria General Hospital's dental department in Halifax. The hospital is affiliated to Dalhousie University. Our object was to ascertain the incidence of lamina dura resorption in patients with primary and secondary hyperparathyroidism.

The investigation involved 13 patients directly and included periapical dental radiographs, phalangeal radiographs, a review of their history, and the determination of serum levels of calcium, inorganic phosphorus and alkaline phosphatase. Five of these patients were suffering from secondary hyperparathyroidism, six were questionable hyperparathyroid patients, and two were diagnosed as having primary hyperparathyroidism.

The charts of 16 additional patients, nine with primary hyperparathyroidism and seven with unconfirmed hyperparathyroidism, were also reviewed.

## Results

The findings are presented in Table 1. They are necessarily incomplete because lamina dura radiographs and certain biochemical tests were not routinely performed in earlier years.

Elevated serum calcium levels were the most consistent and reliable finding in cases of primary hyperparathyroidism. Two of every three of these patients also had lamina dura resorption, and four out of nine displayed phalangeal subperiosteal resorption. Renal disease was the commonest clinical manifestation in primary hyperparathyroidism.

All patients with secondary hyperparathyroidism had some lamina dura resorption and all displayed a cotton wool trabecular bone appearance. The most striking effect was in a 19 year old woman who, prior to a parathyroidectomy, showed complete loss of lamina dura. Radiographs taken a year later demonstrated partial cortical regeneration (Fig 1,2).

None of the patients with questionable hyperparathyroidism had any lamina dura resorption or subperiosteal resorption of the phalanges.

## Discussion

*Primary hyperparathyroidism*—This is a condition in which more parathyroid hormone (parathormone, PTH) is synthesized than is needed. The pathogenesis is usually an adenoma of one or more parathyroid glands. Less common causes are carcinomas or hyperplasia of the glands.

PTH has three main physiological effects: (1) direct action on the renal tubules, diminishing the reabsorption of inorganic phosphorus while increasing that of calcium; (2) increased resorption of bone, releasing calcium and inorganic phosphorus into the circulation; and (3) increased absorption of calcium from the intestine.

Excessive PTH draws calcium into the blood, causing hypercalcaemia. Some of this calcium is excreted by the kidney. At the same time, inorganic phosphorus is taken into the circulation from the bone but more is lost by renal excretion.

Clinical findings associated with primary hyperparathyroidism include kidney and bone disease.

Single, multiple or recurrent renal calculi are the commonest manifestation of kidney disease in these patients. Other findings associated with hypercalcaemia are weakness, fatigue, hypotonia, anorexia, emesis and loss of weight. The patients may suffer from indigestion, abdominal pain or peptic ulcers. There may be calcium deposits in the cornea, kidney or soft tissues around joints. Polyuria, thirst and depression of the glomerular filtration rate may be other features of renal involvement.

Less than half of all hyperparathyroid patients have bone disease even though PTH raises the serum calcium concentration by causing bone resorption. Absence of bone disease in other patients could be due to the fact that apposition keeps pace with osteolytic changes.

Some common features of bone disease are bone pain and local bone "tumours," resulting in pathological fractures.

Since primary hyperparathyroidism is a metabolic disease, its biochemical features are extremely important. They include elevated serum calcium and diminished serum inorganic phosphorus. Serum alkaline phosphatase is raised, but only when bone disease occurs. Urinary calcium is usually high, and so is urinary phosphate because of diminished renal tubular reabsorption of phosphorus.

Besides renal stones, metastatic calcification and skeletal changes can also be observed radiographically in cases of primary hyperparathyroidism. All bones manifest a generalized rarefaction. Cysts and giant-cell tumours are usually found near a joint or in the jaws. The phalanges exhibit subperiosteal resorption, and resorption of the lamina dura is a common finding.

The basic bone lesion is generalized osteitis fibrosa cystica. It is characterized by loss of organic and mineral components and proliferation of osteoclasts. Bone is then replaced by fibrous tissue, giving a resultant structure that is incomplete and irregular.

**Survey of findings in 29 patients with actual or suspected hyperparathyroidism** **Table 1**

| | Clinical manifestations | | Radiographic changes | | | Serum chemistry | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Renal calculi | Other | Lamina dura resorption | Phalangeal resorption | | Elevated | Normal | Lowered | Not reported |
| Primary hyperparathyroidism (11 cases) | 7 | 4 | 2 out of 3* | 4 out of 9* | Ca | 10 | 0 | 0 | 1 |
| | | | | | P | 1 | 2 | 6 | 2 |
| | | | | | Alk Phos | 3 | 2 | 0 | 6 |
| Secondary hyperparathyroidism (5 cases) | 5 | 5 | 5 out of 5* | 2 out of 3* | Ca | 0 | 4 | 1 | 0 |
| | | | | | P | 5 | 0 | 0 | 0 |
| | | | | | Alk Phos | 3 | 2 | 0 | 0 |
| Unconfirmed hyperparathyroidism (13 cases) | 9 | 5 | 0 out of 7* | 0 out of 6* | Ca | 4 | 9 | 0 | 0 |
| | | | | | P | 0 | 9 | 0 | 4 |
| | | | | | Alk Phos | 0 | 9 | 0 | 4 |

Average age: 43.
Sex: males 17, females 12.
*This investigation not done in all patients.

*Secondary hyperparathyroidism*—This is a uniform hyperplasia of the parathyroid glands in response to increased bodily need for PTH. The stimulus is believed to come from a low serum calcium concentration. Some degree of secondary hyperparathyroidism is usually present in pregnancy, lactation, rickets, osteomalacia, renal tubular acidosis, Fanconi's syndrome and chronic renal failure.

The serum calcium is not elevated as in primary hyperparathyroidism but is usually at the lower range

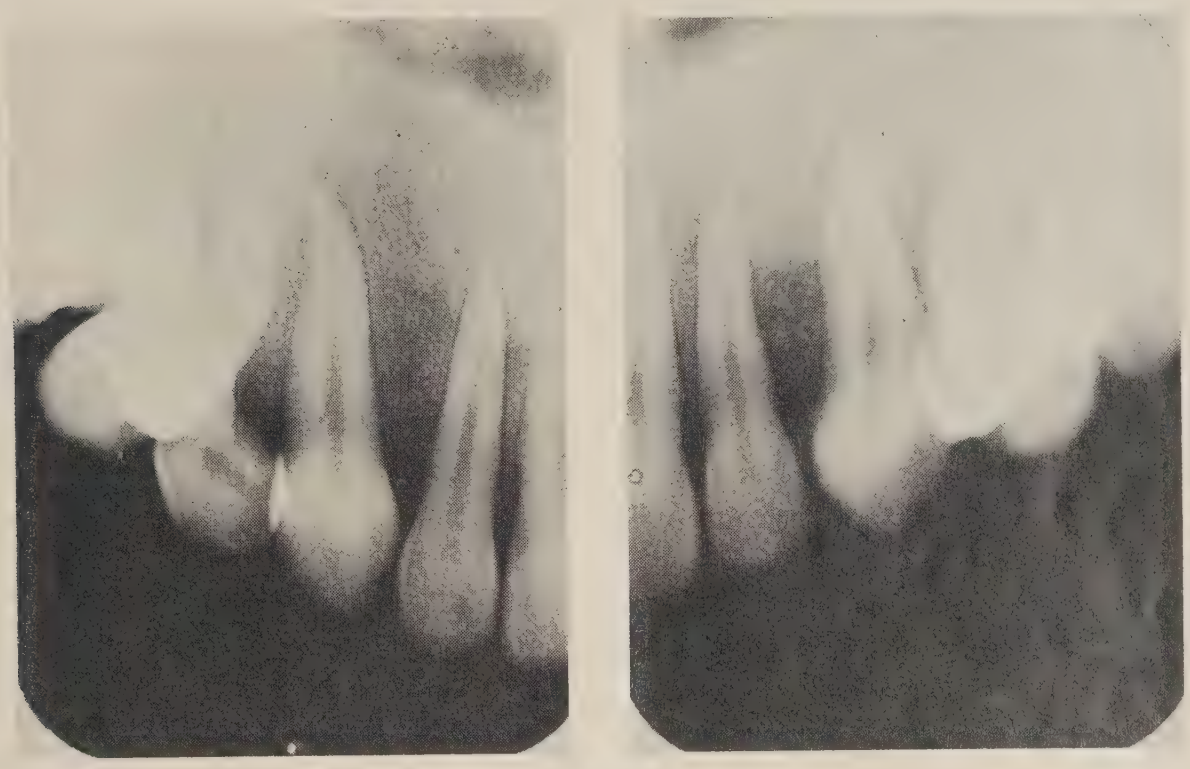

Fig 1 Periapical radiographs of upper jaw before parathyroidectomy. Note woolly appearance of the trabecular bone and loss of lamina dura.

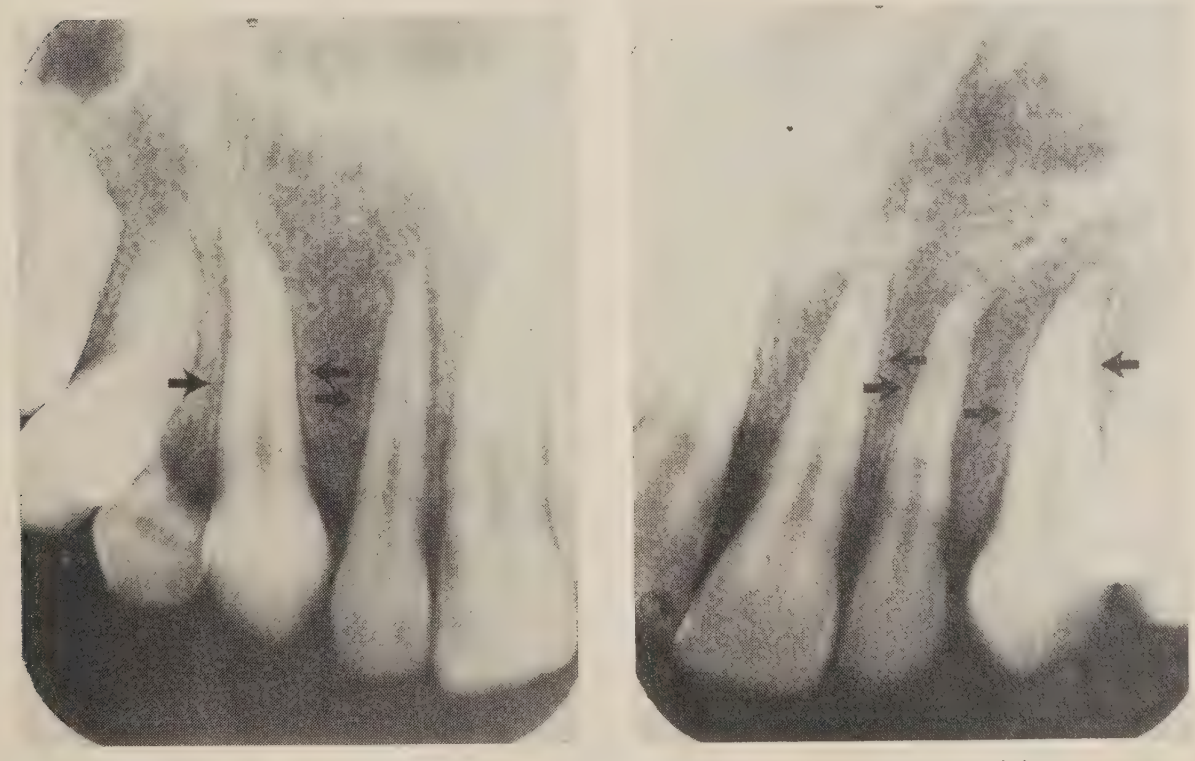

Fig 2 Periapical radiographs of upper jaw after parathyroidectomy. Note regeneration of the lamina dura (arrows).

of normal. Other manifestations resemble those elicited by primary hyperparathyroidism: raised serum alkaline phosphatase levels, reduced renal tubular reabsorption of phosphorus (except in uraemia, where phosphorus is reabsorbed) and osseous lesions of osteitis fibrosa.

*Diagnosis*—Since PTH cannot be isolated, there is no direct way of diagnosing hyperparathyroidism. Clinicians must therefore rely on indirect measures including clinical, laboratory and radiographic findings. Their task is vastly complicated because the manifestations of the disease are so extremely variable.

Many [1-4] agree that increased serum calcium is an essential finding; although sometimes minimal, it is always present. However, hypercalcaemia is also a feature of many other disorders such as hyperthyroidism, sarcoidosis, vitamin D overdoses, milk alkali syndrome, Paget's disease, Addison's disease, multiple myeloma and malignancies without bone metastases.

Urinary calculi are common in hyperparathyroidism. They were present in 291 of 380 patients seen at the Mayo Clinic from 1920 to 1952.[5]

In 1926, Mandl[6] linked bone disease with hyperfunction of the parathyroids when he cured a patient of osteitis fibrosa generalisata by removing an adenoma. Further investigations have shown, however, that skeletal disease only occurs in about one-third to one-half of hyperparathyroid patients.[7-10]

Most bones are affected when bone involvement accompanies hyperparathyroidism. Many investigators have therefore paid close attention to resorption of the lamina dura and phalanges. Several state dogmatically that persons with hyperparathyroidism experience lamina dura resorption. But Rosenberg and Guralnick[11] have warned that absence of the lamina dura is not an infallible sign. Its presence does not rule out parathyroid disease, and its absence certainly demands further investigation.

Subperiosteal resorption of the phalanges seems to be the most favoured radiographic diagnostic sign. It was the only common radiographic finding in 95 patients with osseous lesions surveyed at the University of California Medical Centre.[4] Keating[5] considers it the most sensitive radiographic criterion; he regards decalcification of the lamina dura as the most overrated one.

Serum alkaline phosphatase levels usually increase in cases of bone disease but Silverman et al[4] claim that this is diagnostically unreliable.

The reliability of the serum inorganic phosphorus level is also questionable since results obtained from previous studies show extreme variability.

## Conclusions

The one consistent clinical finding in all our patients with primary, secondary and questionable hyperparathyroidism was renal calculus. The diagnosis then becomes a matter of ascertaining and eliminating its cause in order to prevent kidney failure. Our study shows that clinical, radiographic and serum determinations can provide the answer since:

1. Only in primary hyperparathyroidism do all patients exhibit hypercalcaemia.
2. Only in primary and secondary hyperparathyroidism is there resorption of lamina dura.
3. Only in secondary hyperparathyroidism is the characteristic cotton wool trabecular pattern of alveolar bone noted.

## Summary

This investigation of 29 patients and their records indicates that resorption of lamina dura of the jaws is quite a reliable finding in patients with hyperparathyroidism. When combined with other clincial and laboratory findings, it permits classification of the type of hyperparathyroidism as follows:

1. Consistently elevated serum calcium suggested primary hyperparathyroidism.
2, A cotton wool trabecular pattern of alveolar process indicates secondary hyperparathyroidism.

Patients with renal calculi who do not exhibit any of the above features likely do not have hyperparathyroidism.

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# Initial response of human pulp to zinc polycarboxylate cement

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*Seventeen normal, caries-free bicuspids were filled with a control tooth which was filled with zinc oxide cavities had been prepared using a slow rotation cutting technique. Eleven of these teeth were matched with a control tooth which was filled with zinc oxide and eugenol. The teeth were extracted after 48 hours and the pulps were subsequently examined for histopathological changes. Only a mild pulp reaction was observed. Test and control teeth showed a similar response.*

*Dix-sept prémolaires normales et non-cariées ont été obturées à l'aide d'un ciment au polycarboxylate de zinc, après préparation de cavités buccales au moyen d'une technique employant une vitesse de rotation lente. Onze de ces dents étaient assorties à une dent témoin obturée à l'aide d'oxyde de zinc-eugénol. Les dents furent extraites après 48 heures et l'on a recherché par la suite des modifications histopathologiques dans les pulpes. On n'a observé qu'une réaction pulpaire bénigne. La réaction était la même dans les dents étudiées et dans la dent témoin.*

This investigation began in 1968 following the introduction of zinc polycarboxylate cement,[1] a dental filling material possessing advantageous physical properties.

The study was designed to ascertain the effect of this cement on the human pulp. Results of the initial phase, which assessed the pulp's immediate reaction during the first 48 hours after cavity lining with the cement, are reported herewith.

## Materials and methods

The teeth selected were normal, caries-free, unfilled bicuspids in children and adolescents between the ages of eight and 15 years. These teeth were destined for extraction as part of an orthodontic treatment plan. There were 11 pairs of contralateral bicuspids. One tooth in each pair was filled with zinc polycarboxylate cement while the other, the control, was filled with zinc oxide and eugenol. Six additional bicuspids, for which there was no control, were also filled with the test cement.

**Pulp response to zinc polycarboxylate cement and zinc oxide-eugenol** **Table 1**

| Tooth pairs | Zinc polycarboxylate | | | | Zinc oxide-eugenol | | | |
|---|---|---|---|---|---|---|---|---|
| | RD* mm | Odontoblast aspiration | Superficial response | Deep response | RD* mm | Odontoblast aspiration | Superficial response | Deep response |
| 1 | 0.90 | no | none | none | 0.50 | yes | none | none |
| 2 | 0.95 | yes | wheatsheafing | none | 0.55 | yes | wheatsheafing | none |
| 3 | 0.50 | no | wheatsheafing | none | 0.40 | no | wheatsheafing | none |
| 4 | 1.25 | no | wheatsheafing | none | 1.40 | no | none | none |
| 5 | 0.55 | no | mild | none | 0.70 | yes | none | none |
| 6 | 0.80 | yes | wheatsheafing | none | 1.30 | no | none | none |
| 7 | 0.90 | yes | slight haemorrhage | none | 1.50 | no | none | none |
| 8 | 1.05 | no | none | none | 1.00 | no | none | none |
| 9 | 0.60 | yes | mild hyperaemia | none | 0.70 | no | none | none |
| 10 | 1.50 | no | none | none | Exp | yes | hyperaemia | none |
| 11 | 0.10 | no | none | none | 0.55 | no | none | none |
| 12 | 0.70 | no | none | none | | | | |
| 13 | 0.65 | no | mild hyperaemia | none | | | | |
| 14 | 1.25 | yes | none | none | | | | |
| 15 | 1.10 | no | none | none | | | | |
| 16 | 1.25 | yes | mild hyperaemia | none | | | | |
| 17 | 1.05 | no | wheatsheafing | none | | | | |

no control

* Remaining dentine thickness.

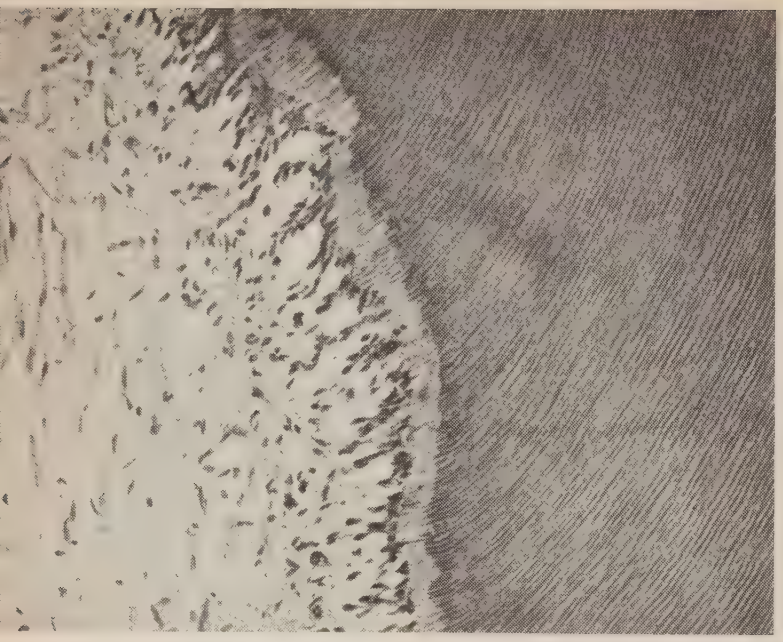

Fig 1 Photomicrograph from tooth of pair 4 shows mild oedema of the odontoblast layer in response to a cavity filled with zinc polycarboxylate cement. H. E. original magnification x600.

The cavities were prepared without any local anaesthetic. Using water-cooled burs, each cavity was cut on the buccal surface, adjacent to the gingival margin, and directed obliquely toward the centre of the crown. A belt-driven handpiece was used for the initial penetration into the enamel. The remainder of the cavity was then cut with a Kavo speed reduction head rotating at 100-250 rpm. Round steel burs, size 2 and 4, were used for the preparations which were finished with a size 4 flat fissure bur. Exerting light pressure only, the burs were withdrawn repeatedly to allow the water jet full access to the depth of the cavity.

Cutting proceeded until the patient signalled pain or the cavity attained a depth of approximately 3mm. The preparations were then dried with a pledget of cotton wool, and test tooth cavities were filled with zinc polycarboxylate cement while control cavities received zinc oxide and eugenol.

Returning two days later, the patients were questioned about any postoperative symptoms. The teeth were then extracted under general anaesthesia. Immediately thereafter the root apices were removed using a cutting disc under water. The teeth were then submerged in 10 per cent formal saline. Each specimen was subsequently decalcified in formic acid, paraffin embedded, sectioned at 7$\mu$ and stained with haematoxylin and eosin.

The remaining dentine thickness (Table 1), taken as the shortest distance between the cavity floor and the surface of the pulp, was measured with a micrometer eyepiece.

The pulp was examined for possible changes in three regions:[2]

1. Cellular displacement manifested by movement of odontoblasts and leucocytes into the dentinal tubules.

2. Evidence of inflammation in the superficial tissues of the pulp (odontoblast layer, zone of Weil and the cell rich zone).

3. Evidence of inflammation in the deeper pulp tissue below the cell rich zone.

## Results

The results are recorded in Table 1. Only minor changes were observed in the superficial pulp. The deeper tissues showed no change (Fig 1). The most pronounced alteration occurred in case 7 where mild localized areas of haemorrhage were evident in the cell rich zone and odontoblast layer.

None of the patients compained of discomfort when questioned two days after this procedure.

## Discussion and conclusions

Four factors may cause a variation in the pulp reaction: age, the size of the tooth crown, the postoperative interval before extraction, and the thickness of the dentine remaining between the cavity floor and the pulp.[2]

We tried to minimize their effects as far as possible. The patients' age range extended over only seven years, the teeth were all bicuspids and the postoperative period was 48 hours in each case. The greatest difficulty occurred in regulating the thickness of remaining dentine. Stanley[2] regards 2mm as the maximum allowable thickness; otherwise the dentine may act as an insulating barrier shielding the pulp from thermal and chemical stimuli. The remaining dentine was less than 2mm in all our patients, but even so there was a variation in the thickness between the test and control teeth which made a direct comparison difficult.

This fact, together with the observation that all the changes were minimal and similar in both series, makes a statistical presentation of the results inappropriate. However, this study shows that gross histological change is not the initial response of the human pulp to zinc polycarboxylate cement. Further investigation will be necessary to assess the effect up to 14 days, when Shovelton and Marsland[3] observed maximum response, and at intervals up to approximately 10 weeks, the period during which resolution occurred.[3]

The authors express appreciation to Professor J. L. Hardwick in whose department the clinical part of this study was carried out.

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# Lingual arch and pontic appliance replacing a child's permanent incisor

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*An acrylic denture tooth attached to a soldered lingual arch wire is an acceptable space maintainer replacing one or two prematurely lost or absent permanent incisors. This article describes how to construct this appliance and compares its benefits with a conventional partial denture.*

*Une dent artificielle en résine acrylique fixée à un fil métallique lingual pour arc peut servir à maintenir l'espace et remplacer une ou deux incisives permanentes absentes ou prématurément perdues. L'article décrit la construction de cet appareil et compare ses avantages avec ceux d'une prothèse partielle classique.*

Prostheses used to replace permanent incisors in the mixed and early permanent dentitions often present seemingly endless problems. Although they are temporary, they must usually last for several years during a period of active dental development.

Intended primarily to serve the requirements of space maintenance and aesthetics, these appliances should also be capable of withstanding masticatory forces and maintaining a healthy periodontium. They must not interfere with speech, and they should require a minimum of alteration as the dentition develops.

This paper describes a technique for constructing a fixed appliance which, in the author's opinion, best meets these requirements.

The appliance basically consists of a denture tooth attached to a soldered lingual arch wire. It is recommended for the replacement of one or two permanent incisors that are prematurely lost or congenitally absent. To retain the appliance in the mouth, the first permanent molars must be present in the working arch —the arch for which the appliance is intended. A clinical case in which this appliance was used is shown in Figures 1 and 2.

## Technique

*Chairside procedure*—Seamless stainless steel molar bands are fitted and adapted to the two first permanent molars in the working arch. An alginate impression of the arch is obtained with these bands in place. The molar bands are then removed, positioned in the impression and luted into place with sticky wax. Next, an alginate impression is taken of the opposing arch and a wax interocclusal record is obtained with the teeth in maximum interdigitation. Selection of the shade for an acrylic pontic is the final step.

*Laboratory procedure*—Plaster casts are obtained from the impressions (Fig 3). A line is drawn on the working cast indicating the position that the lingual arch wire will assume. The anterior portion of the design should follow the alignment of the teeth and extend labially in the area of the missing tooth to a line bisecting the alveolar ridge labiolingually. A passive lingual arch using .045 stainless steel wire is contoured to follow this design and to rest passively on the cast (Fig 4). The opposing cast is then occluded to the working cast to ensure that the lingual arch wire is free of the occlusion.

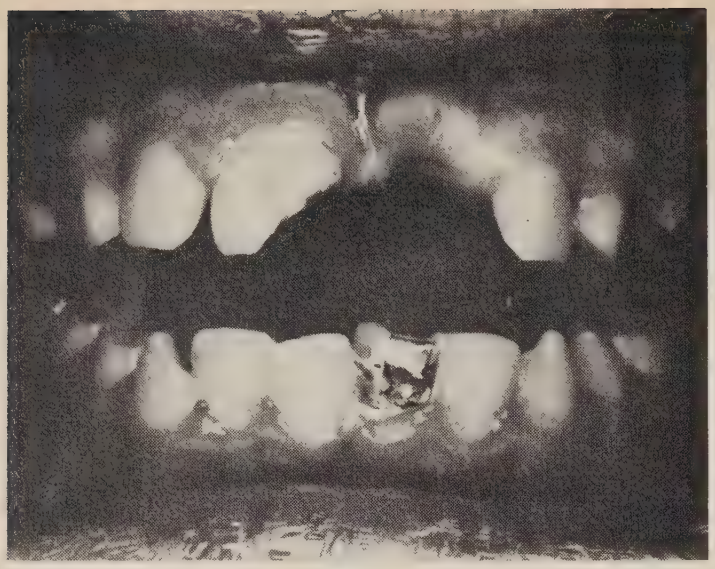

Fig 1

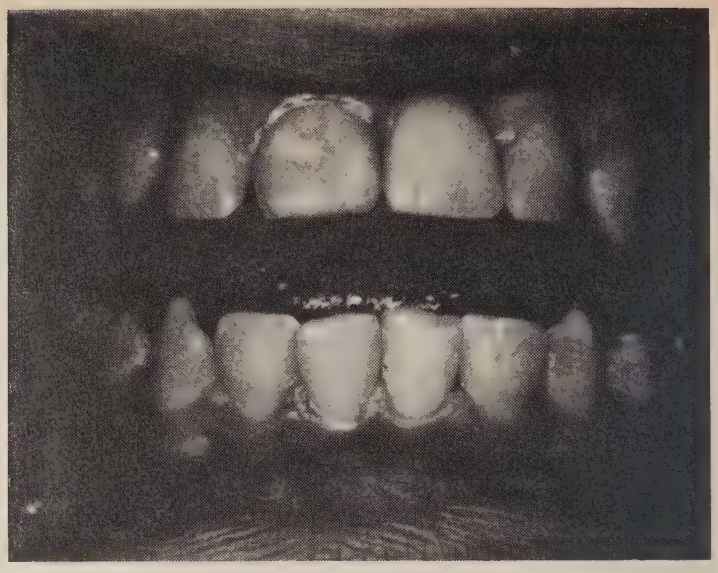

Fig 2

The lingual arch is marked to indicate the mesiodistal centre for the pontic. A 2 inch length of .016 stainless steel wire is then shaped into a close U configuration and spot welded around the lingual arch wire with the open ends projecting labially (Fig 5). The supporting wire is adjusted to bisect the intended pontic mesiodistally in its gingival half. The lingual arch and the supporting wire are then soldered into position. Finally, the entire assembly with bands is dislodged from the working cast, polished and reseated on the cast to check the passivity of the appliance (Fig 6).

The next stage involves fitting the pontic. First the free ends of the supporting wire are reduced to 5mm and the appliance is replaced on the working cast. Using a carborundum disc, a triangular wedge is cut from the lingual surface of the acrylic denture tooth. The pontic tooth is ground to fit the alveolar ridge and held in proper alignment by a sticky wax so that the supporting wire projects into the cut out area (Fig 7). Conditions vary with each case; therefore further reduction of the supporting wire or the lingual aspect of the pontic is sometimes necessary.

Once the opposing cast has been used to check the occlusion, a liquid separating medium is applied to the working cast and allowed to dry. The pontic is secured to the lingual arch with self-curing acrylic resin applied in small increments by the bead technique. The material fills the lingual aspect of the pontic and extends onto the lingual arch wire. When it has set the pontic is trimmed and polished (Fig 8).

**Discussion**

When an incisor is lost in the mixed dentition, the appliance most commonly recommended is an acrylic partial denture. These appliances satisfy the prime objectives of space maintenance and aesthetics, but they are also subject to loss or breakage. Further, the dentist may have to alter the denture or make a new one in

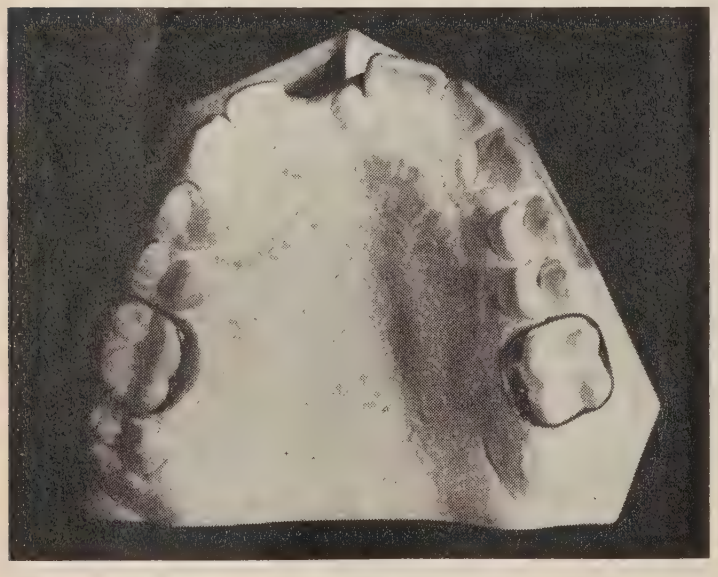

Fig 3

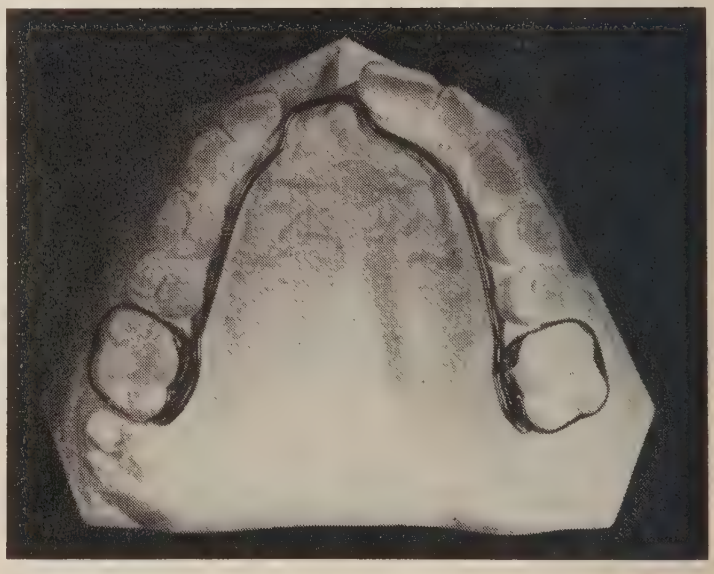

Fig 4

Fig 5

Fig 6

response to developmental changes or gingival irritation. Although no single appliance is ideal, the one described will alleviate the frequency with which some of these problems occur.

Certain precautions are necessary when constructing this appliance. The anterior portion of the wire should not traverse the cingulum of an incisor or cuspid; otherwise these teeth may tip labially when masticatory force is applied.

It must be remembered that the unerupted maxillary first bicuspids are wider buccolingually than the maxillary primary first molars. This consideration influences the adaptation of the arch wire in the buccal segments when it is used in the early mixed dentition stage.

Unnecessary breakage of the appliance can be prevented by a proper design which avoids traumatic occlusion with the opposing dental arch.

The appliance should be inspected periodically to preclude impingement or deflection of an erupting tooth. Since we are dealing with the developing dentition, the time intervals between the examinations will be dictated to some degree by the stage of dental eruption. Generally, the appliance should be removed and re-cemented at least once every six months. Patients and parents should also be reminded about the necessity for routine oral hygiene and encouraged to use dental floss to cleanse the area beneath the pontic.


**Summary**

A method of using a lingual arch and a denture tooth for replacing an incisor in the mixed dentition stage has been described. This appliance is an acceptable aesthetic replacement that preserves space and withstands masticatory forces. Additional benefits are less periodontal irritation and fewer alterations than required by commonly used acrylic prostheses.



Doctor Wright is assistant professor in the Department of Paediatric Dentistry, University of Western Ontario, London.


He expreses appreciation to Doctor R. Musselman, chairman, Department of Paedodontics, Louisiana State University, for assistance with this technique.


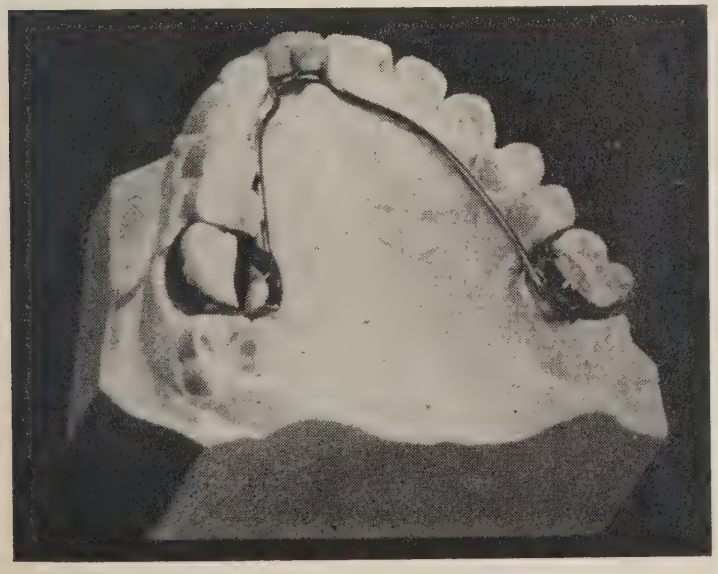

Fig 7

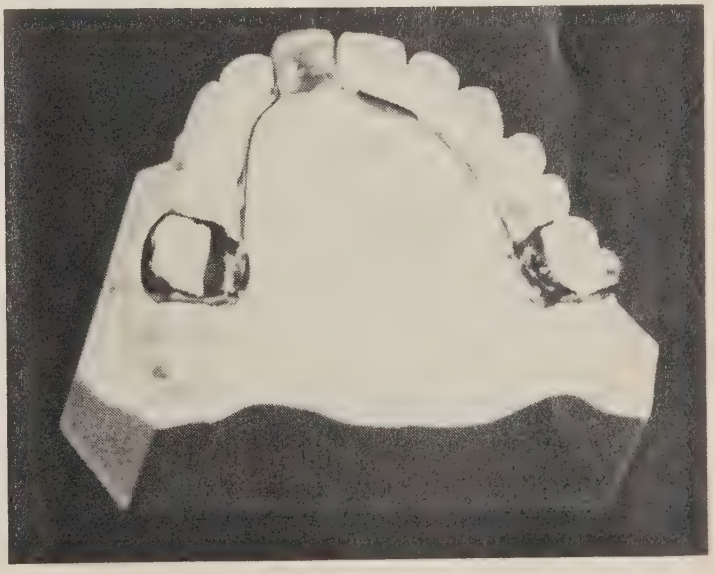

Fig 8

# Dental care demand for mongoloid and cerebral palsied children

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**London, Ont**

*Demand for dental care is determined by several factors, the most important being preconceived attitudes about the nature of dental care, level of discomfort that can be tolerated, the availability of service and basic understanding of dentistry. Handicapped children need dental care just as much as normal children, but mentally retarded children may not be able to communicate pain to their parents. This article presents the results of a survey taken of the parents of mongoloid and cerebral palsied children and their feelings about dental care.*

*La demande de soins dentaires dépend de plusieurs facteurs dont les plus importants sont les idées préconçues sur la nature des soins dentaires, le niveau de malaise tolérable, la disponibilité des soins dentaires et une compréhension élémentaire de la dentisterie. Les enfants handicapés ont autant besoin de soins dentaires que les enfants normaux mais ils ne peuvent pas toujours faire connaître leur douleur à leurs parents. L'article présente les résultats d'une enquête accomplie auprès des parents d'enfants atteints de mongolisme et de paralysie cérébrale, et décrit leurs sentiments sur les soins dentaires.*

The factors that influence the demand for dental care are knowledge of the subject, attitude toward the service, past experience, and availability of the service[1] which depends on the number and distribution of dentists as well as the facilities for treatment of special patients. The ability to obtain that service turns potential demand into effective demand.

This paper describes a survey of the determinants of demand for dental care among the parents of a group of mongoloid and cerebral palsied children.

## Survey

The 226 children were outpatients of the Children's Psychiatric Research Institute in London, Ontario. Their mean age was 10.1 years. Several of the children with cerebral palsy were epileptic as well.

The institute provides diagnosis, counselling and summer relief. This service is covered under the Ontario Health Services Insurance Plan. Parents, however, pay nearly all the dental treatment fees.

Each of the four determinants of demand was tested in a questionnaire sent to the parents in August 1969. Knowledge was tested with a series of questions compiled from the 1953 Family Dental Survey of the American Dental Association.[2] The other determinants of demand were tested with questions designed for this study.

The replies correlated well with the earlier survey. Results were tabulated by socio-economic level and occasionally by medical problem as well (Table 1). Members of class 1 had a yearly income from $8,000 to over $12,000 and the education of the head of the house ranged from some high school tuition to one or more degrees. In class 2 the head of the house usually

**Dental care demand survey in parents of 226 mongoloid and cerebral palsied children. Returns by socio-economic level** **Table 1**

| | Questionnaires | | |
|---|---|---|---|
| Class | Sent | Returned | % Returned |
| 1 | 81 | 51 | 63.0 |
| 2 | 230 | 132 | 57.4 |
| 3 | 102 | 43 | 42.2 |

**General knowledge of dentistry according to socio-economic level** **Table 2**

| Questions and answers | Class 1 (N=51) % | 2 (N=131) % | 3 (N=43) % | Total % |
|---|---|---|---|---|
| Can most crooked teeth be straightened? | | | | |
| Yes | 94.1 | 94.7 | 88.4 | 93.3 |
| No | 3.9 | 2.3 | 2.3 | 2.7 |
| No opinion | 2.0 | 3.0 | 9.3 | 4.0 |
| Does the foetus take calcium from the mother's teeth? | | | | |
| Yes | 23.5 | 55.7 | 58.1 | 48.9 |
| No | 70.6 | 34.4 | 23.2 | 40.4 |
| No opinion | 5.9 | 9.9 | 18.6 | 10.7 |
| Does pregnancy cause cavities? | | | | |
| Yes | 49.0 | 66.4 | 69.8 | 63.1 |
| No | 43.1 | 26.0 | 23.2 | 29.3 |
| No opinion | 7.9 | 7.6 | 7.0 | 7.6 |
| Do vitamin and mineral-rich foods prevent tooth decay? | | | | |
| Yes | 56.9 | 66.4 | 67.4 | 64.4 |
| No | 39.2 | 26.0 | 25.6 | 28.9 |
| No opinion | 3.9 | 7.6 | 7.0 | 6.7 |
| Toothaches can subside; do they always need dental care? | | | | |
| Yes | 84.3 | 74.0 | 72.1 | 76.0 |
| No | 13.7 | 20.6 | 23.2 | 19.6 |
| No opinion | 2.0 | 5.4 | 4.7 | 4.4 |
| Do primary teeth need care even though they will be replaced? | | | | |
| Yes | 94.1 | 90.8 | 81.4 | 89.8 |
| No | 5.9 | 6.1 | 18.6 | 8.4 |
| No opinion | 0.0 | 3.1 | 0.0 | 1.8 |
| Is the six year molar replaced by permanent teeth? | | | | |
| Yes | 43.1 | 34.4 | 41.9 | 37.8 |
| No | 43.1 | 45.0 | 27.9 | 41.3 |
| No opinion | 13.7 | 20.6 | 30.2 | 20.9 |
| At what age should children first go to a dentist? | | | | |
| After all primary teeth are in (age 2½-3) | 80.3 | 68.7 | 53.5 | 68.4 |
| Before starting school (age 5) | 15.7 | 22.9 | 34.9 | 23.6 |
| When most permament teeth are in (age 12-13) | 2.0 | 0.8 | 7.0 | 2.2 |
| At the first signs of decay | 2.0 | 7.6 | 4.6 | 5.8 |

N=Total number of replies per category.

had less than grade 9 instruction and an annual income of $4,500 to $7,000. In class 3 the head of the house had little or no formal education and relied on part-time employment, welfare or other forms of aid.

## Knowledge

All groups seemed to understand the possibilities of aligning malposed teeth. Nevertheless, many basic misconceptions still linger (Table 2). Nearly half of the parents thought that the unborn child absorbs calcium from the mother's teeth. A still larger group felt that pregnancy causes cavities in the mother's teeth. A great majority believed that foods with plenty of vitamins and minerals would prevent tooth decay. Almost one in five thought that a toothache often subsides spontaneously and therefore does not necessarily require the attention of a dentist. Fortunately, most respondents appreciated the necessity of restoring the primary dentition. As in the American survey, only about half the parents who answered knew that the six year molar is a permanent tooth.

Socio-economic considerations were most significant in relation to when a child should first visit the dentist. Correct answers decreased in proportion with the socio-economic level.

The percentage of correct answers in each category was higher than in the original survey but closely parallel to it. This may be because information on dentistry is now more readily available and because these parents have a special concern for their children.

## Attitude

Parental attitude toward dentistry surpasses knowledge of the subject as a motivating factor for demand. Attitudes appear to be directly related to socio-economic levels. The poor and less well educated parents use up most of their energy in satisfying the immediate needs of food, clothing and shelter. Health care is not considered essential, and therefore not worth the extra effort.[3] This attitude is borne out by the greater frequency of address changes in class 3 and perhaps also by the fact that one-third of the parents in this class wore complete dentures compared with 8 per cent of those in class 1 (Table 3).

Lack of communication between the practitioner and patient can pose problems resulting in missed appointments, unheeded instructions or feelings of resentment. Appointments and instructions do not have the same meaning and urgency for the poor as for the well educated, financially independent person.[3]

Utilization is also influenced by the elective nature of the service. For example, immunization against childhood diseases was less popular in the lower socio-economic categories. We observed a similar trend in regard to families having a family dentist (Table 4) but the percentage was perceptibly higher in our sample (86 per cent) than in the general population (72 per cent).[4]

The most significant increase, compared to the general population, was in the lower income groups, but it must be remembered that these parents have a spe-

**Parents' dental status** **Table 3**

| | Class 1 (N=50) % | 2 (N=130) % | 3 (N=41) % | Total % |
|---|---|---|---|---|
| Wear complete dentures | 8.0 | 19.2 | 34.1 | 19.5 |
| Wear partial dentures | 12.0 | 20.0 | 9.8 | 16.3 |
| Have most of my own teeth | 50.0 | 36.2 | 46.3 | 41.2 |
| Have all my own teeth | 30.0 | 24.6 | 9.8 | 23.0 |

cial interest in the care of their children. This interest is further evidenced by the importance they attach, for a number of reasons, to dental care for the handicapped child (Table 5).

Parents of both mongoloid and cerebral palsied children felt that dental care was a necessary requirement for general health. They both registered concern about the child's inability to express pain, and that he should not have to tolerate such pain in addition to all his other problems. Soft teeth, inability to care for the teeth or wear dentures and speech difficulties were also mentioned. In general, the reasons given are the same and indicate a very positive attitude at all socio-economic levels.

**Relative importance of dental care for a handicapped child as compared with a normal child** **Table 5**

| | Class 1 (N=51) % | Class 2 (N=131) % | Class 3 (N=43) % | Total % |
|---|---|---|---|---|
| More important | 25.5 | 22.1 | 20.9 | 22.7 |
| Less important | 0.0 | 0.0 | 0.0 | 0.0 |
| Equally important | 72.5 | 70.2 | 74.4 | 71.6 |
| No opinion | 2.0 | 7.7 | 4.7 | 5.7 |

**Respondents' status relative to toothache and last visit to a dentist** **Table 6**

| | Mongoloids (N=145) % | Cerebral palsied (N=81) % |
|---|---|---|
| Has your child ever had toothache? | | |
| Yes | 20.7 | 34.6 |
| No | 65.5 | 30.8 |
| Do not know | 13.8 | 34.6 |
| How long since his last dental appointment? | | |
| More than 1 year | 39.3 | 54.4 |
| 6-12 months | 60.7 | 45.6 |

**Any unpleasant dental experience in childhood?** **Table 7**

| | Class 1 (N=50) % | Class 2 (N=129) % | Class 3 (N=43) % | Total % |
|---|---|---|---|---|
| Yes | 22.0 | 18.6 | 18.6 | 19.4 |
| No | 78.0 | 81.4 | 81.4 | 80.6 |

## Past dental eperience

Attitudes toward dental care are often based on vague impressions or past experience.

When asked if their children had experienced a toothache, the parents of cerebral palsied children gave significantly more positive and do not know answers than parents of mongoloids (Table 6). The lower frequency of dental visits of cerebral palsied children may account for more dental emergencies in this group, but a significant point is that badly brain damaged children may not be able to communicate pain to their parents. Recent studies[5, 6] indicate that cerebral palsied children are no more susceptible to dental caries than the general population. Conversely, mongoloid children may have less caries resistance than was earlier believed, thus accounting for the substantial percentage of mongoloid children who were reported as having received treatment for toothache, extractions and restorations.[7]

The majority of dental problems mentioned by parents of mongoloid and cerebral palsied children related to malocclusion and eruption of teeth, as well as periodontal disease and bruxism. Some parents believed erroneously that anticonvulsants could soften teeth.

Frequency of visits to the dentist was categorized by socio-economic level and medical problem (Table 6). As expected, more children of the lower classes had never been to the dentist. The difference was more marked, however, when the responses were grouped according to the medical problem. The cerebral palsied children received less initial and follow-up treatment than mongoloids. However, the cerebral palsied children were getting checkups about as often as the general population.[4] Forty-five per cent had regular checkups on a six month to one year cycle, compared with 60 per cent of mongoloid children.

Parents in class 3 had complete or partial dentures more often than those in class 1. The attitudes of such persons are often coloured by a series of emergency extractions and memories of parents who were edentulous before age 30. Nevertheless, the parents often sacrifice to provide dental care for their children despite their personal convictions.

A fairly consistent 80 per cent of parents could not remember any particularly unpleasant experience with the dentist. The same ratio held for all socio-economic levels (Table 7).

**Respondents' status relative to immunization and family dentist** **Table 4**

| | Class 1 (N=51) % | Class 2 (N=131) % | Class 3 (N=43) % | Total % |
|---|---|---|---|---|
| Immunization | | | | |
| Yes | 96.1 | 95.4 | 81.4 | 92.9 |
| No | 3.9 | 4.6 | 18.6 | 7.1 |
| Family dentist | | | | |
| Yes | 96.1 | 84.7 | 76.7 | 85.8 |
| No | 3.9 | 15.3 | 23.3 | 14.2 |

## Availability of service

The final section of the survey was concerned with availability of service—the difference between potential demand and effective demand. Significant differences were evident when the children were classified according to medical problem.

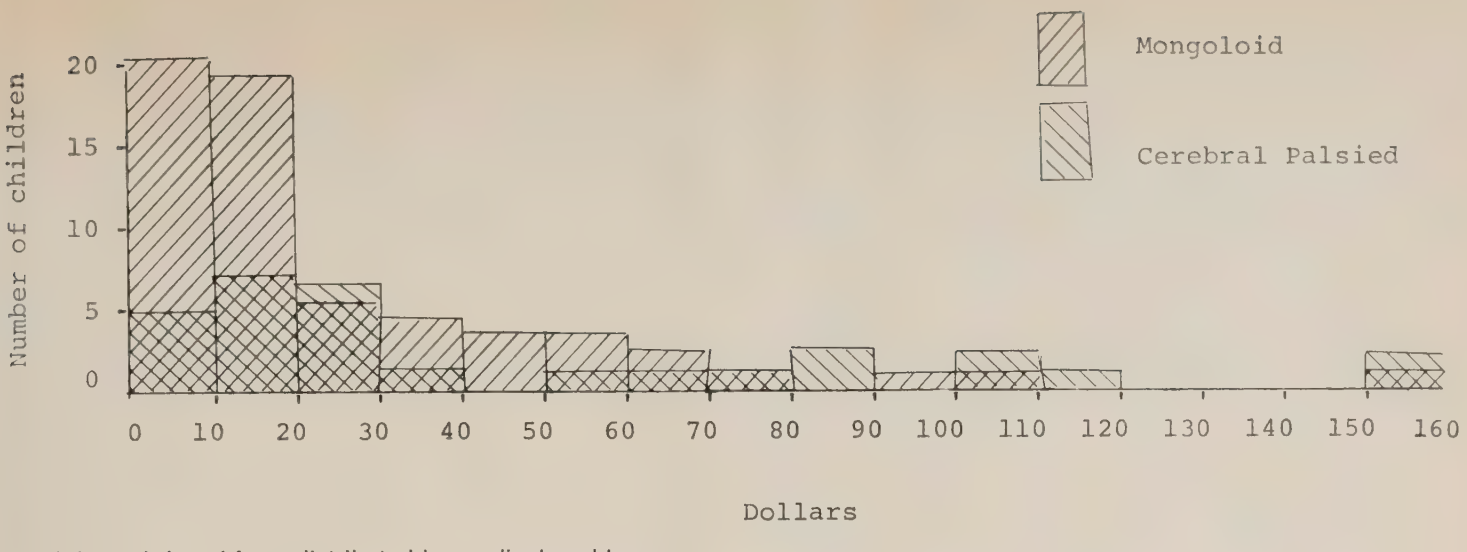


Fig 1 Annual dental fees, distributed by medical problem.

Seventy per cent of mongoloid children went to the family dentist but only 44 per cent of cerebral palsied children were treated by him (Table 8). Understandably, parents of cerebral palsied children encountered more difficulty obtaining service. Their problems ranged from referral to being placed on a long waiting list. Those parents who specified the dentist that treated their child mentioned the paedodontist most often, followed by the school dentist, the orthodontist, the public health dentist and the oral surgeon.

Type of treatment received varied according to medical condition. Extractions and restorations predominated in cerebral palsied children. Fishman et al[6] have noted that cerebral palsied and normal children do not get the same treatment even though caries attack rates are similar in both groups.

Dental fees for the past 12 months varied from $2 to $150. The mean was $24 (N=60) for mongoloids and $38 (N=28) for cerebral palsied children (Fig 1). Almost all of the fees were paid by the parents. Some extractions performed in the hospital were covered under the Ontario Health Services Insurance Plan.

The fees for some children in the lower socio-economic levels were paid by local school boards, a crippled children's society, community or church groups, or service clubs. There were persons in class 3 who had spent over $150 during the past year or two on dental care for their children.

**Dental treatment experience** **Table 8**

| | Mongoloids % | Cerebral palsied % |
|---|---|---|
| Choice of dentist | (N=106) | (N=59) |
| Family dentist | 70.8 | 44.1 |
| Other | 29.2 | 55.9 |
| Difficulty in obtaining a dentist | (N=103) | (N=54) |
| Yes | 15.5 | 25.9 |
| No | 84.5 | 74.1 |
| Treatment received | (N=144) | (N=89) |
| Checkup only | 41.6 | 21.3 |
| Extractions | 27.8 | 34.8 |
| Restorations | 26.4 | 37.2 |
| Periodontal | 1.4 | 4.5 |
| Orthodontic | 2.1 | 1.1 |
| Other | 0.7 | 1.1 |

## General comments

The survey ended with a section inviting observations on dentistry in general. The most frequent comment was that dental fees were too high. The more affluent parents expressed concern for the low income groups and those with large families. Others said they were unable to pay the entire cost of complete dental treatment for themselves or their family. Some parents thought there were not enough dentists who were interested in the handicapped. They felt that these children need special arrangements and special care. On the other hand, the majority were satisfied with their dentist and appreciated his support.

There was also favourable comment about existing preventive dentistry programs. Many parents expressed a desire for a government sponsored or prepaid dental insurance plan. Several requested more information on dentistry for the handicapped while others asked specific questions about treatment. A small number of parents felt that their child was such a management problem that no dentist could possibly handle him.

## Discussion

The child-interested, medically orientated sample of parents tested in this survey manifested a greater potential and effective demand for dental care than the general population. Their attitudes were very strongly positive. Knowledge of dentistry and past experience correlated more with socio-economic circumstances than medical problem.

Availability of service poses a genuine problem. Twenty-nine per cent of mongoloid children and 45 per cent of cerebral palsied children went to someone other than the family dentist. Facilities for treatment, though available in some larger centres, are often

quite distant, forcing a parent to take time off work and accentuating the cost.

Many respondents complained about the government's seeming indifference over the plight of handicapped children. Dental fees, which seem high when complicated or extensive treatment is required, are particularly distasteful to parents who are saving the government considerable expense by keeping their children at home.

Availability of care for these children and general knowledge of dentistry among parents must be considerably improved. The excellent pamphlet *Dental Health for the Special Child,* published by the American Society of Dentistry for Children, answers many of their questions and should be distributed at every opportunity.

Service will increase as more practitioners learn to treat handicapped children or refer them. Changes recommended by the Ontario Committee on the Healing Arts could provide increased hospital facilities for the treatment of special children. If all hospitals had dental departments, local dentists could perform much or all of the treatment, and specialist consultants could serve several hospitals in a given area.


**Summary**

A survey was taken of parents of mongoloid and mentally handicapped cerebral palsied children to assess their demand for dental care for their children. All respondents expressed concern about the present facilities for the care of handicapped children and felt that dental care was just as important for them as for normal children. It is clear that these parents need more information about the benefits that dentistry can offer their child. Smaller centres require facilities for treatment and parents need relief from the fees resulting from the extensive and complicated treatment their children often require.



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## "TO BE OR NOT TO BE"

(With apologies to William)

To be or not to be that is the question

Whether 'tis nobler in the mind to suffer

The investigation and examination of government committees

Or to listen to recommendations of Carleton-Cowan

And take some action. To let them die or sleep.

Ah then, if by a sleep we thus could end

The heartache and the thousand natural shocks

Of introspection; 'tis a consummation

Devoutly to be wished. To let them die or sleep.

To sleep? Perchance to dream. Ay, there's the rub;

For in this sleep of sleeps what death may come,

When we have shrugged off our corporate responsibilities

Our aims, our laws. And have no respect

For the unity that gives us life;

Who then would bear the whips of public ire

The Thorne Group report, the Aims and Objectives Conference,

The Ad Hoc committee, the Five Year Plan,

The burden of the Executive Director and the need

For dollars to advance their claims?

It is enough to have the President his quietus make

With a bare scalpel. Who would burdens bear,

To grunt and sweat under a weary life

But that the hope that someday ere the death

Of the national association from starvation,

The corporate bodies, a puzzle if you will,

Will rally 'round and bear the ills we have

And fly not to others that we know not of?

Thus conscience does make cowards of us all,

And thus the Board of Governors' resolutions

Are sicklied o'er with the pale cast of indecision,

And enterprises which should be carried out

Because of lack, their actions do delay,

While all play games of introspection.


R. A. Gray DDS, Medicine Hat, Alta.



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# Dental identification in the Woodbridge disaster

**K. B. Petersen, DDS**
**S. L. Kogon, DDS, MSc**
**London, Ont**

*In the following article the authors explain the significance of dental identification in mass disasters, and describe the identification procedure which was carried out following the crash of an Air Canada DC-8 at Woodbridge, Ont, last July. A brief summary of the formation and aims of the Canadian Society of Forensic Odontology is given, and the authors emphasize how important it is for dentists to keep uniform, accurate dental records of all their patients.*

*Les auteurs démontrent l'importance de l'identification dentaire dans les cas de désastre et décrivent les procédés d'identification employés à la suite de l'écrasement d'un DC-8 d'Air Canada à Woodbridge, Ontario, en juillet dernier. Ils rappellent brièvement la création et les buts de la Société canadienne de stomatologie médico-légale et soulignent combien il est important que les dentistes conservent des dossiers dentaires uniformes et précis pour tous leurs patients.*

Although many dentists have had individual experience in the field of identification by dental means, no organized approach to this aspect of dentistry has been attempted in this country. In order to remedy this situation, the Canadian Society of Forensic Odontology was recently formed. Shortly after its formation, members of the society were called upon to help in the identification of victims of an aviation disaster.

This article describes the formation of the CSFO, the structure of the dental identification team and the role it played in the Woodbridge disaster. The results of the dental identification procedure are also reviewed.

## Canadian Society of Forensic Odontology

Dental tissues are more resistant to destruction than other parts of the body, a useful feature for purposes of identification. The increasing frequency of mass disasters, where dental remains are often the sole proof of identity, underscores the necessity for a more organized approach to this problem.

Doctors K. F. Pownall and J. D. Purves, Toronto, therefore set out to lay the foundation for a nation-wide organization. Its purpose was to arouse interest and to educate dentists in this new discipline.

On July 2, 1970, during the national convention of the Canadian Dental Association in Winnipeg, 13 dentists from across Canada founded the CSFO. Many others expressed an interest in joining the new organization.

Prior to the meeting, Doctors Pownall and Purves had already established contact with the Ontario Provincial Police, the Ontario Supervising Coroner's Office and the Centre of Forensic Sciences in Toronto. Only three days later the fledgeling society was called upon to participate in identifying victims of an Air Canada DC-8, which crashed on July 5, northwest of Woodbridge, Ontario. By July 9, the dental team had taken its place beside the pathologists, OPP Identification Squad, Coroner's staff and personnel representing the Centre of Forensic Sciences, to begin the arduous task of identifying those who perished in the disaster.

## The Woodbridge disaster

The crash took place on Sunday morning, July 5, seven miles north of Toronto International Airport. The plane, Flight 621, carrying 109 passengers and crew, impacted violently into a grassy field and exploded, instantly killing all aboard. Firemen and police arrived at the crash site within minutes to extinguish the fire and establish security. Although the effects of the fire were not extensive, it was immediately evident that, owing to the fragmentation of the victims, their identification would be extremely difficult.

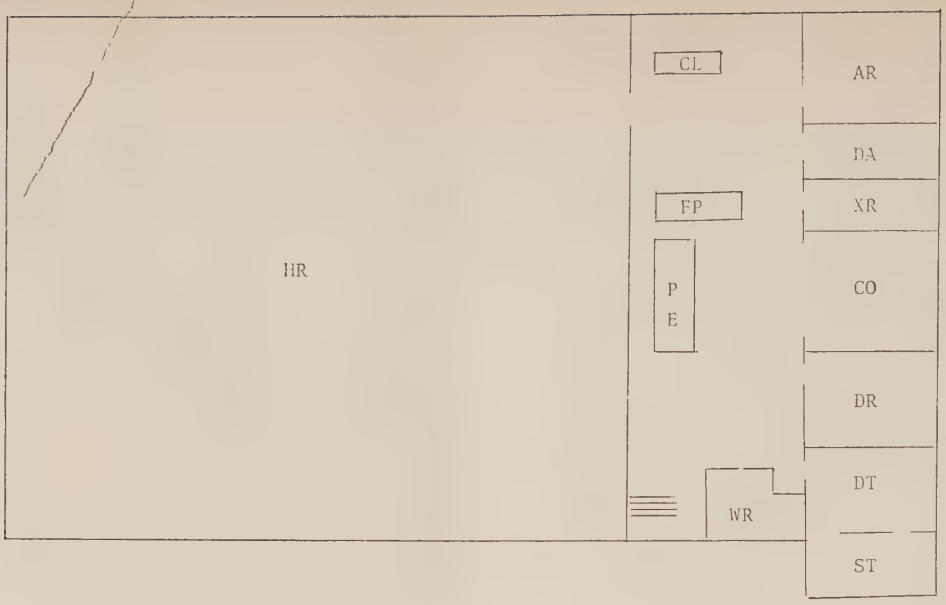


Fig 1 Floor plan of morgue. HR hockey rink, CL control of labelling, AR autopsy room, DA dark room, XR x-ray room, CO coordinating office, DR dressing room, DT dental team, ST storage room, FP fingerprint, PE personal effects, WR workroom.

OPP officers began collecting human remains, placing them in plastic bags and marking the sites with stakes and numbers. The bags were then taken in ambulances to an emergency morgue and temporarily stored in refrigerated transport vans. A grid system was established to mark geographically the exact location of all the human remains and an organized search of the site began in order to collect every possible fragment. These fragments were also placed in plastic bags and given catalogue numbers which corresponded to their locations on the hypothetical grid.

The emergency morgue was set up a few miles from the crash site in the Woodbridge Memorial Arena, an ice hockey stadium with cooling facilities and suitable accommodation for the investigation teams. The bags containing the remains of the victims were stored in large open boxes on the cool hockey rink floor, to await post-mortem examination. Figure 1 shows a diagrammatic sketch of the facilities available for the identification team. The second floor, not shown in our diagram, was used for office space, communications and the recording of personal effects and luggage. Food service, provided by Air Canada, and a St. John's Ambulance Depot were also located there. Strict security was maintained by police officers and no one, except those directly involved in the investigation, was admitted.

## Identification team

In spite of the fact that most of the participants had not previously assisted in a mass disaster, the early organization, flow of authority, and cooperation among the various teams were amazingly good. Figure 2 illustrates the operation of the identification teams.

The dental team was hurriedly formed from volunteers who offered their services to Doctor Purves. In all, 12 dentists were involved at one stage or another throughout the following 16 days. It was possible to establish continuity of service since one or two of the dentists who had followed the investigation from the start were present at all times. This was a great help because it precluded the necessity to brief new arrivals with all the data.

The daily roster consisted, with few exceptions, of four or five dentists. This number proved to be the most efficient under the prevailing conditions. Due to the fragmentation of the bodies, there was no possibility of physical identification by relatives and, therefore, no need for dentists to interview next of kin.

A disaster kit was quickly obtained. It consisted of dental examination instruments, an x-ray machine, gowns, gloves and masks, a 35mm camera with an electronic flash, an x-ray viewer and a colour slide projector and screen. Equipment and supplies for developing radiographs were provided. A supply of dental charts was obtained for use by the team.

## Procedure

The contents of each bag were initially examined by the pathologists in the autopsy room. All clothing, jewellery and personal effects were removed from the bodies, examined, photographed, recorded and then stored for later reference. All articles of clothing were washed and dried. Fingerprints were taken where possible. Every effort was made to determine age and sex when sufficient remains allowed this to be done. Great care was taken to record accurately how much of the content of a particular bag was attached to and belonging to a particular body.

A dentist was present in the autopsy room whenever possible. When a dental specimen was found, it was recorded, removed from the body, labelled and

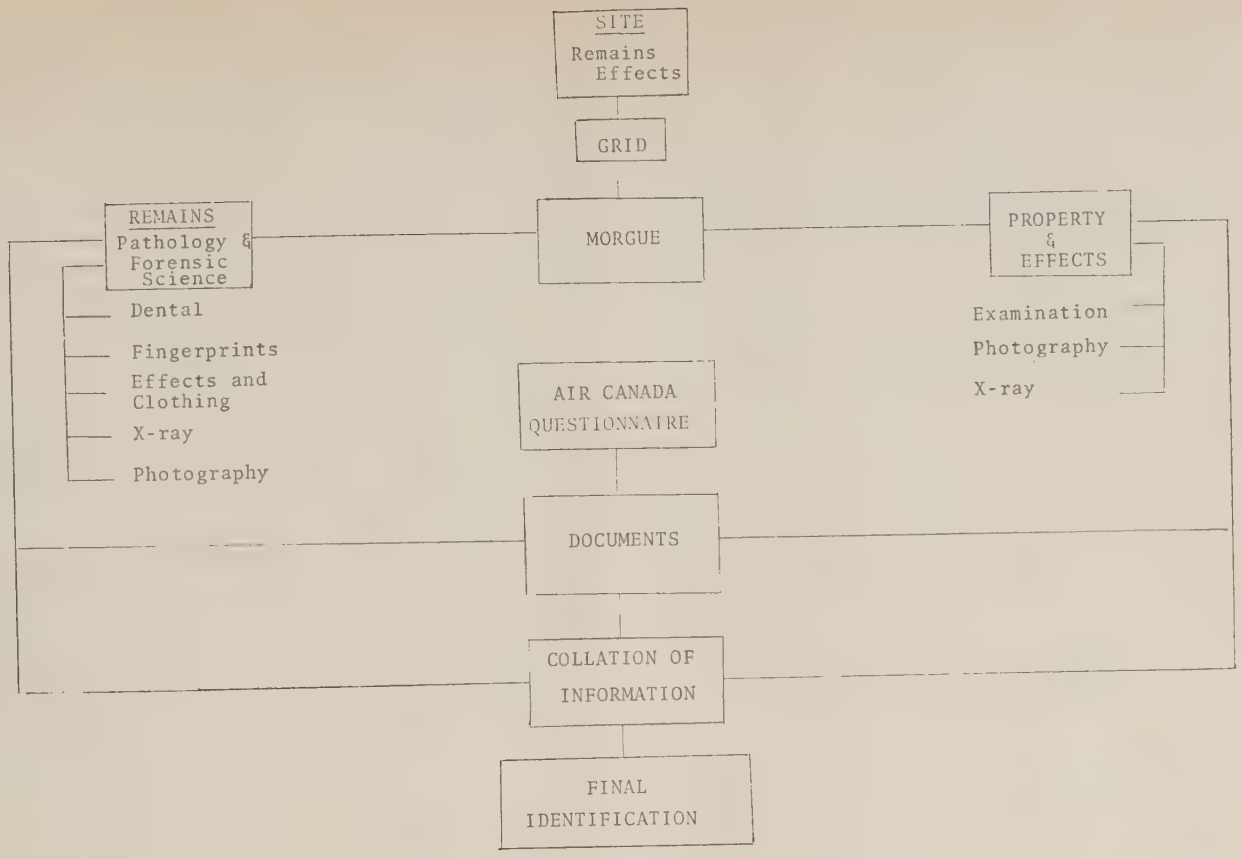


Fig 2 Operation chart for identification procedures of human remains.

released for dental identification. In the dental room, the specimen was first cleaned and dissected. Then a description of the specimen was recorded on a dental chart, using a pre-arranged system of nomenclature and notation. The details recorded included descriptions of the extent of the fragment and all significant abnormalities, such as rotated teeth, diastemas, hypoplasia and variations of size and shape. All restorations were recorded as to the exact location, size and composition. For each specimen, every effort was made to estimate age and sex. Radiographs were taken whenever necessary to aid in age estimation and when endodontic therapy was suspected. When prosthetic appliances were found, their extent, the material used and details regarding construction were recorded. Colour slides were taken of all specimens to form a permanent record. Finally, the dental specimens were placed in labelled plastic bags and stored in the arena in a separate bin for possible further examination.

Immediately after the crash, Air Canada contacted the victims' relatives who were requested to complete a questionnaire regarding information about the deceased's medical history, clothing, jewellery, physical characteristics and dental condition. When the name of the deceased's dentist was obtained, Air Canada requested him to provide all significant dental data. These documents were hastily collected and transported by air to Toronto and then taken by police to the arena. The dental records were examined by the dental team and when the information enabled a positive identification to be made on a recorded specimen it was processed immediately. In most cases, though, the documents were filed for future reference.

During the first week the dental team was primarily involved in collecting and recording specimens. Although some identifications were made, there was little time to approach the task in an organized manner. Toward the end of the first week, the pathologists had nearly finished their work and more time was available to compare the ante- and post-mortem dental data. It became increasingly evident that radiographs would play an extremely valuable role in identification. Therefore, it was decided to retrieve all the specimens and take radiographs of them. Occlusal films were found to be the most practical for this task.

In order to examine the contents of the bags as soon as possible the entire identification team had to work 12 to 14 hours a day. After nine days most of the material had been examined and it was decided to take a two day break over the weekend. The dental team transported all its records and documents to the Faculty of Dentistry of the University of Western Ontario where equipment was available for the automatic processing of the large number of radiographs. Due to excellent cooperation with the Kodak processing laboratories in Toronto, all the colour slides were returned in short order. These slides were of considerable value as a clean and easily obtainable substitute for the actual specimen.

## Identification procedure

Dental identification was complicated by the fact that almost all bodies were badly shattered and the team was presented with great quantities of dental fragments. Many of these fragments were found separately and not attached to an identifiable body. An attempt

was made to simplify the retrieval of post-mortem dental data by introducing a punch card system. These cards contained information regarding missing and restored teeth, restorative material and age and sex estimations. The appropriate information from each specimen was punched out on the card. Whenever significant ante-mortem information was obtained, a probe was passed through all the prepared cards and the cards which matched that particular information were then separated.

Unfortunately, this punch card system did not achieve the expected results, probably because there were too many specimens consisting of only small fragments of jaws, which implied many possibilities. For the same reason, elimination charts would have been equally unsuccessful.

We therefore shifted our attention to the post-mortem radiographs and colour slides. The ante-mortem records were standardized and then each post-mortem radiograph with its matching colour slide was compared with all ante-mortem dental data. Although this was time-consuming, it proved extremely rewarding. Most of the dental identifications were made in this way. The results were so gratifying that this work was continued at the dental faculty in London for an additional two days.

Members of the team returned to Woodbridge with many positive dental identifications and a number of probabilities which required further investigation. Mr. Lucas, a representative from the Centre of Forensic Sciences, directed a central office which compiled all the data collected from the various teams. He provided clues and leads which were of great value when there were various possibilities for a particular identification.

Age estimation by dental means proved to be extremely helpful and was sometimes the only evidence that led to the identification of infants, children and young adults. Identification of a victim by his personal belongings was greatly facilitated when the probable dental age of the victim was established. Dentures or fragments of dentures were of no value in making identifications. Except in two cases, all dentures and denture fragments were found separately at the crash site. No identification marks were found on any of the dentures or denture fragments.

## Presentation of the evidence

On various days throughout the investigation, Doctor Cotnam, the Supervising Coroner, arranged a meeting with representatives of all the identification teams and officials from Air Canada and the provincial police. The representatives from each team presented the evidence which they had accumulated since the previous meeting. The coroner examined the information for each case and decided whether it was sufficient to make a positive identification. In all positive dental identifications, the dental evidence was accepted as primary proof of identity.

## Results

Unfortunately, ante-mortem dental records were obtained for only 67 of the 109 victims.

Table 1 illustrates the type of information received. Primary identification by dental means was made in 53 cases, representing 60 per cent of all identifications and 49 per cent of the total number of victims. Corroborative dental information played a significant role in the identification of many other victims.

Table 2 illustrates the success of dental identification in relation to the type of ante-mortem records received. Dental identification was made in 72 per cent of the cases where useful ante-mortem records were available.

Information about dentures proved quite worthless. When ante-morten records on dentures were available, they were generally not sufficiently explicit. The problem was accentuated by the fact that even when we had information concerning the make, shade and mould of the teeth and denture base material, no positive identification could be made because the dentures were severely shattered, isolated from the bodies or only partially recovered.

Some idea of the problem faced by the investigation team can be best illustrated by the fact that more than 800 separate bags of human remains had to be examined. From these, we received 134 specimens of jaws and 37 denture fragments. As illustrated in Table 3, 59 per cent of the 134 specimens of jaws were identified by the dental team. In some cases, more than one specimen was identified with the same body.

**Type of ante-mortem dental information** — **Table 1**

| | |
|---|---|
| Radiographs with or without a written report | 41 |
| Written report only | 20 |
| Information concerning dentures only | 6 |
| None | 42 |
| Total victims | 109 |

**Results of identification** — **Table 2**

| Ante-mortem records | No | Identification by all means including dental | Dental identification No | % |
|---|---|---|---|---|
| Radiographs with or without written report | 41 | 37 | 29 | 71 |
| Written report only | 20 | 17 | 15 | 75 |
| Information concerning dentures only | 6 | 6 | 1 | 17 |
| No dental information | 42 | 28 | 8 | 19 |
| Total | 109 | 88 (81%) | 53 | 49 |

**Dental specimens** — **Table 3**

| | |
|---|---|
| Dental specimens recovered | 134 |
| Dental specimens identified | 79 |
| Percentage identified | 59% |

## Discussion

It is interesting to speculate on the reason for the severe fragmentation of the victims' heads. We suppose that on impact all seat-belted passengers were thrown forward, smashing their heads into the built-in utility tray of the seat in front. Generally the middle face was blown away completely, leaving only the scalp and traumatized lower jaw, attached by soft tissue. We therefore received for examination more specimens from the mandible than from the maxilla.

Most often the mandibular fragments were found attached to the body which was thrown free from the aircraft. The maxillary fragments which were blown away on impact were frequently found in the vicinity of the crater. The mandibular specimens represented 55 per cent of the possible total number of mandibles. The recovered fragments of maxillae represented 35 per cent of the total. Infants who were not seat-belted did not suffer the severe fragmentation that was characteristic of the other passengers.

The presence of an active dental team encouraged the pathologists to recover as many dental specimens as possible. Sometimes these specimens were deeply buried in the tissue and required much effort to localize and free them by dissection. To our knowledge, no dental fragments were found in the trachea, which was opened and examined in each case. On-the-spot radiography of the head and neck would have been a help in recovering additional dental specimens. Without the excellent cooperation of all the pathologists, the retrieval of specimens and subsequent dental identification would have been very difficult.

It is necessary at this point to make some comments concerning the ante-mortem dental records which were collected. The information gained from the Air Canada questionnaire was of very limited value. Typical examples of the answers to the questionnaire were "straight teeth," "crooked teeth," "wore false teeth," "had plates." When we felt that more information could be obtained, Air Canada was asked to reapproach the next of kin to secure the names of dentists who had treated these victims. This further attempt to obtain useful professional information was often fruitful.

There was great diversity in the quality of the ante-mortem dental records. We are extremely grateful to those colleagues who keep detailed and precise records of their patients. The records, casts, radiographs and clinical photographs they sent were of the utmost value. On the other hand, we also received many "professional" records containing scanty bits of information. It was appalling that a dentist, under such serious circumstances, would supply professional information scrawled on a scrap of paper torn off his memo pad.

Only a few dentists seemed to have a chart of the patient's oral condition when he first presented for treatment. Therefore, we frequently had records of treatment rendered by a particular dentist but no information about any previous restorations. This was not serious when a full series of radiographs or even bite-wing films were enclosed. Radiographs were of supreme value in making most of the positive identifications. When ante-mortem and post-mortem radiographs were compared, even very small details were of maximum significance. Besides information concerning the exact outline of restorations, such details as the shape of roots, bone structure, pulp stones, endodontic therapy, root development and closure were often used for direct comparison.

The ante-mortem records were notable for the diversity of their systems of nomenclature. Although this was not a serious handicap, a standardized system such as that proposed by the Fédération Dentaire Internationale is desirable.

We had to introduce certain new symbols to indicate fracture lines in the jaws, extent of the fragments, avulsed teeth and trauma of teeth due to impact.

The recording charts which we used were of good quality and were easy to file. However, in retrospect, we feel that a new international chart should be designed for this special purpose.

In mass disasters, the retrieval of data impedes quick identification. We are therefore investigating the use of a computer for this purpose.

Identification in a mass disaster is a time-consuming affair. Owing to external pressure the coroner was obliged to set a deadline for the termination of active investigation. During the 16 days in which the dental team was involved, 12 dentists contributed a total of 492 hours. There is no doubt that the success of this undertaking was due to the superb cooperation of every person involved.


## Summary

This article presents a brief review of the formation of the Canadian Society of Forensic Odontology and the significance of dental identification following the Air Canada crash at Woodbridge, Ont, July 5, 1970. The authors show how the success of any identification procedure is based on skilful organization and the cooperation of everyone involved, including in this case the dentists who previously treated the victims of the crash. They point out that if all the dentists contacted had been able to provide clear, comprehensive records of their patients the efforts of the identification team would have been even more productive.



The authors express appreciation to the following colleagues who contributed their valuable time and assistance: G. J. Chong, J. D. Evans, M. C. Nordine, E. M. Petersen, J. D. Purves, W. T. Purves, D. W. Stoneman, B. M. Twible, E. A. White and C. H. M. Williams.



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# Reviews / Analyse

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# Mr. Benson's bundle

Any considered reaction to Mr. Benson's draft bill on tax reform must be one of relief, tempered with doubt; relief because the bill is basically different from the white paper, and doubt because it still retains some of the rigid doctrinal concepts which aroused strong hostility.

The bill avoids the most dreaded features of the white paper. It makes some welcome changes — such as income averaging and better treatment of retirement and pension plans. But it also perpetuates some of the white paper's more distasteful features.

Under the white paper dentists would have had to report their income on an accrual basis rather than a cash basis as at present. Receivables and work in progress would have been brought into their taxable income. Though the CDA argued strongly against this proposal, it reappeared in the reform bill. The only difference is that dentists have the option of excluding work in progress.

Accrual accounting may compel dentists to maintain more elaborate financial records, requiring time and energy which could be better devoted to caring for their patients. To avoid loss of time, the dentist may have to hire sophisticated accounting assistants, thereby increasing his operating expenses and the cost of serving his patients. This accounting assistance may be difficult to obtain in rural areas where dentists are already overworked and in short supply.

The new legislation also hits at graduate students who now face taxes on fellowships and bursaries. But it is not all bad. There will be a basic $500 exemption on the amount, plus deductions allowed for equipment, travel, laboratory charges, fees and tuition. These changes, however, leave unresolved another issue of importance. This is what the government will do to offset the inclusion of scholarships and fellowships in taxable income. The academic community regards these as providing the bare minimum for existence. Bigger scholarships and fellowships may have to be provided. This, in turn, could mean fewer.

After the taxing of scholarships was proposed in the white paper 20 months ago, representatives of the universities agreed that the government should increase its direct support for research and scholarship.

*(Continued on page 313)*

# Mercury hygiene

Public apprehension over possible mercury poisoning and mercury pollution of rivers and lakes has focused renewed attention on the problem of mercury hygiene in dental practice.

Dentists are among the major consumers of mercury, each practising dentist using about two and a half pounds of the metal a year, principally in the preparation of amalgam restorations.[1] Careless handling exposes the user to potentially harmful concentrations of mercury. One out of seven dentists falls in this category, according to a recent US survey.[2]

Major causes of dental office contamination are spillage and mercury expressed from freshly prepared amalgam which is then deliberately thrown to the floor. Mercury from either source vaporizes readily at room temperature. This vapour is dangerous when breathed in sufficient concentrations for a long time.

Mercury in amalgam restorations does not pose a serious hazard to the patient who is subjected to only brief periods of exposure, but dentists and their employees should be constantly alert to the risk of long-term exposure from this source. They should also guard against improper disposal of waste amalgam and consequent contamination of the environment.

Good mercury hygiene is not difficult if proper office procedures are followed.[1] The metal should be stored in unbreakable, sealed containers. Amalgam scrap should be salvaged and kept in a tightly covered container. Where necessary, solid waste traps should be installed on cuspidors, aspirators and evacuators.

Decontamination of offices is more difficult but essential. Visible spillage should be eliminated by vacuum suction. Office floors should be of seamless construction and extend two inches up each wall. Rugs, carpets and mats from grossly contaminated offices should be destroyed. Mercury vapour suppressants should be used routinely. Walls and ceilings should be panelled or painted. Cleaning equipment should be confined to the dental office and should be replaced often. So should air conditioner filters.

Another potential source of contamination of room air with mercury vapour is the removal of old dental amalgam fillings with high-speed rotary cutting instruments. The use of a water spray and high volume

*(Continued on page 304)*

# Avez-vous lu?

Le temps des vacances procure quelques moments de loisirs que l'hiver ne peut pas toujours nous donner. Le reste de l'année, le dentiste est bombardé de revues scientifiques, de manuels, de conférences, de congrès. Les heures sont à jamais trop courtes.

L'été, c'est le temps de la détente, du sport et du rattrapage. C'est l'occasion de lire (ou de relire) les communications importantes que nul ne peut se permettre de manquer.

Avez-vous lu "Faut-il louer ou acheter l'installation pour le cabinet dentaire?" dans le numéro du mois de janvier du Journal?

Avez-vous lu l'historique des négociations entre les professionnels de la santé et le gouvernement du Québec?

Avez-vous lu la brochure *L'Association Dentaire Canadienne, ses structures et ses services* qui vous a été envoyée au mois de mars? Elle brosse un tableau rapide des avantages que vous procure votre association nationale (et combien sont totalement ignorants à ce sujet!).

Avez-vous lu "Au service de l'humanité", un éditorial qui examine la déontologie face à la dentisterie conventionnée (mars)?

Avez-vous lu ce qui passe en Ontario? ("Les disciplines de la santé face à des transformations radicales en Ontario") afin de mieux comprendre ce qui se développe aussi dans votre province?

Avez-vous lu un résumé de l'entente intervenue entre les dentistes du Québec et le gouvernement provincial (p 127 avril)? Si vous ne savez rien de l'entente, vous ne pouvez pas connaître les conditions sous lesquelles vous pratiquerez bientôt votre profession.

Avez-vous lu la page éditoriale du mois du mai qui traite de "Dentisterie conventionnée"? C'est une étude des pourparlers difficiles qu'ont du mener les négociateurs de l'Association des Chirurgiens-Dentistes du Québec. Le document qui a été signé est d'une importance primordiale parce que c'est le seul au Canada à avoir incorporé un système de critères qui contrôle le flux inutile des patients vers les hôpitaux pour l'extraction des dents. Toutes les autres provinces se doivent de l'étudier.

Avez-vous lu, au mois de juin, "Les conditions buccales et dentaires chez l'enfant canadien d'origine française" par Perrault, Demirjian, Beiger et Jenicek?

Avez-vous lu la brochure *L'Association Dentaire Canadienne . . . et VOUS,* qui explique très clairement les services que vous procure votre cotisation à l'ADC? Vous n'y avez probablement jamais songé. Mais les gouvernements provinciaux semblent pencher pour la séparation des droits "obligatoires" d'autorisation d'exercer et de cotisations aux associations dentaires. Quel avantage y a-t-il à rester membre de l'ADC?

Avez-vous lu l'éditorial sur le fonctionnement du Bureau des Gouverneurs de l'ADC à la page 206 ("Un Bureau des Gouverneurs nouveau style") afin de comprendre comment vos représentants à l'ADC en arrivent à des décisions qui toucheront très certainement votre avenir professionnel? Ce sont vos affaires et c'est à vous de vous en occuper! Informez-vous. lisez ce qui est écrit, participez au développement de votre profession. Après tout, c'est la seule que vous avez. Pensez-y!

# Letters/Courrier

*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponsible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.*

### History of dentistry

Your article about Doctor Don W. Gullett's book on the history of dentistry in Canada (June issue) afforded me great pleasure. Soon after its publication, I read, with absorbing interest, all the 308 pages and thus derived considerable enlightenment. This outstanding work represents a princely and dedicated effort worthy of the highest commendation.

Accurately and attractively written, it embraces an abundance of too frequently forgotten facts, assembled and presented in a really fascinating manner. I am confident that it will be regarded as one of the historic classics of our profession.

I (now in my 85th year), a graduate of Toronto, am delighted to read about stalwarts who, to me, remain ever verdant. Among such mentioned by Doctor Gullett are J. B. Willmott and his son, Walter, A. E. Webster, W. E. Cummer, A. W. Thornton, as well as C. N. Johnson who delivered the address to the graduating class of 1912, one of whom was the genial Tom Cowling – a tower of strength to our year.

Others, by no means forgotten by the author, are J. C. G. Adams, whom I visited at his home, when we had a very interesting talk about school dentistry, of which he was a pioneer, and Harry Garvin, happily still with us.

These are but a few of the many Canadian giants of our profession whose names will endure and to whom the author paid due homage.

It induces a degree of nostalgia that Doctor Gullett was unable to use all the material which he unearthed; yet it is to be hoped that his unpublished researches will be carefully preserved and made available to future historians. As he so rightly believes and emphasizes, real progress markedly depends on an accurate knowledge of the past.

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### Tooth extraction and arch dimension

Doctors Demirjian and Marcus should be congratulated for undertaking the extensive study from which the standards of arch dimension for a French Canadian population were derived (June issue). It was very interesting to observe the close relationship in arch dimension between this population and that of Moorees. However, the purpose of the article was "to study effects of tooth extractions on dental arch dimensions" and this has not been attained.

The conclusion that "arch dimensions are not significantly affected by premature extraction of the primary cuspids and molars or the first permanent molars" may be related to unsound experimental methods. Inclusion of first molars in the extraction group could understandably lead to an increase in arch length and affect the extraction group means.

The future study proposed by the authors, whereby the extraction cases will be subdivided into smaller groups according to site of extraction, is certainly indicated. In addition, it is imperative that other factors such as time of extraction, cusp height, leeway space and overbite be included and that individual cases be studied serially.

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### Grouping of specialties

I would like to comment on the "Proposals for Specialization in Dentistry" advanced by the Council on Education in the April issue.

Only one of 26 countries (East Africa-Kenya) recognizes more than eight specialties. The average number recognized in the other 25 is only five.

Elsewhere the Council recommends the grouping of specialties. If this pattern were followed with all recognized specialties as well as disciplines which now seek recognition or those which, the Council suggests, may seek it in future, Canada would recognize 14 specialties. This would give us the distinction of being second only to East Africa-Kenya with 15 recognized specialties. This from a Council which ar-

gues that grouping tends to reduce proliferation!

In this connection, the Council envisions no problem for the general practitioner whose original knowledge or skills are no longer needed; "opportunities do exist and are growing for him to bring himself up to date with new knowledge. He can very easily change his clinical orientation within his own practice."

"For the specialist, however, no such option is available," the report notes, adding that, "one answer to this problem is to provide for re-training of specialists just as is happening in other areas" (whatever this means) "and to provide for mobility between groups as inclination and need may dictate."

Apparently the Council is telling us something like this: Suppose that periodontal disease is conquered after several years. Since dental caries can also be effectively controlled, prosthodontists would no longer be required as no one would lose any teeth! However, under the Council's recommendations prosthodontics is grouped under the Restorative Dentistry "umbrella" along with endodontics and operative dentistry. The "mobility between groups" which the Council claims will follow from this grouping will enable the prosthodontist who has spent much of his lifetime doing nothing but prosthetics to switch, for example, to endodontics since he is in the same "group" and, therefore, has mobility.

A second advantage claimed for grouping is that there will be a "desirable exchange of information, ideas and knowledge between dentists all working to the same goal." Because they are grouped together, the Council seems to suggest, prosthodontists will become far more familiar with the problems of the endodontist and will probably spend a good deal of their time reading endodontic journals. Simply not true! It is impossible to keep up with all of the journals, books, lectures, short courses, conventions, audio-visual aids and tape recordings now available in all of the areas of dentistry in which we are interested.

The third point argued in favour of grouping is that "proliferation of specialties will eventually result in loss of credibility with other health professionals, with government and private administrators, and with university authorities." Why? There are almost 30 specialties in medicine. Has this resulted in loss of credibility with other health professionals, with government and private administrators, and with university authorities?

In discussing the advantages of grouping the Council claims that "the knowledge base upon which a number of the present specialties have been built now overlaps to a highly significant degree and this overlapping will continue to increase in magnitude." The exact opposite is true. Indeed, the rapidly increasing volume of knowledge forces us to know more and more about less and less in all fields of human endeavour.

The Council asserts that "the grouping of various specialties under common titular umbrellas seems so proper and logical that one wonders why it has not been done long ago. The Canadian Dental Association and others have tried to do it, but without success." Possibly the reason why no one else has done it is because it does not make sense and it is neither proper nor logical.

The Council attributes the failure of the CDA Board of Governors to approve the grouping principle "to a number of factors, many reflecting self-interest." The fact that many persons who may or may not be affected disagree with the grouping principle does not necessarily represent "self-interest."

I do not question the necessity for communication between the various areas of dentistry, and for an interdisciplinary approach to common clinical problems and to our patients. But this happens naturally when the need arises. It is happening right now between two specialties which are not grouped together as proposed. The specialties of oral surgery and orthodontics have recently collaborated in handling such problems as extreme mandibular prognathism and moving the maxillary segments posteriorly by surgical means.

Some of the specialties and disciplines which the Council suggests might be grouped, do have a reasonably close affinity. Grouping biostatistics, dental public health and epidemiology under Public Health Dentistry seems more valid than the assortment proposed under Oral Medicine/Surgery (oral surgery and periodontics) or under Paediatric Dentistry (orthodontics and paedodontics). Orthodontists do not deal exclusively with children; they are concerned primarily with problems of morphology. The paedodontist, in my view, is well trained in most phases of dentistry, but he can handle and treat young children better than most of us.

Finally, the Council says, "this type of grouping will create no problems for schools in developing educational programs. Some problems of semantics may remain, but these will diminish in time. It is worth noting that the problem of semantics appears to be nonexistent in medicine which has almost 30 specialties grouped under the two broad titles of physicians and surgeons." This is not grouping. All holders of an MD degree are called "physicians and surgeons," just as all who graduate with a law degree are "barristers and solicitors."

The British Columbia Society of Orthodontists, which I represent, is opposed to the grouping principle since it has apparently never been necessary anywhere else in the world, and since it would create one more organization for us, to belong to and, presumably, support. Oral surgeons are still going to meet with other oral surgeons and have a society of oral surgery. Periodontists will meet with periodontists and have a society of periodontists. And orthodontists – even though they are grouped under Paediatric Dentistry with paedodontists – will still meet with other orthodontists and will still have a society of orthodontists.

The advantages of specialization are obvious in that restriction of interest to a smaller field increases one's experience and expertise even though it may require additional formal training. The disadvantages are equally well known: the disappearance of the "family doctor." The important point to remember is that any decisions on specialization should be designed with the best interests of the general public in mind.

I concede that unnecessary proliferation is undesirable. But, allowing proliferation and then hiding it under a semantic blanket called "grouping" is a pretence that really only four specialties exist in dentistry. This is not the answer to the problem.

*C. E. Craig, DDS, MS*
*750 West Broadway*
*Vancouver 9, BC*

**Endosseous implant**

I must compliment Doctor Somborac for his recent article on the endosseous implant in the May Journal. He has shown how stimulating dentistry can be and how we as dentists can offer a greater service for our patients and add a new dimension for the profession.

Dentistry is now facing further fragmentation and very strong and critical public opinion. I feel that dental implants can be used with proper direction and application to disseminate these new dynamic services and provide a means for good public relations.

Men like Cherchève, Scialom, Linkow, Orlay, Edelman and Muratori have taken the dental implant from the experimental phase to a permanent place in the dental armamentarium.

Implantology is here! It is dynamic, not static. Although more men are now entering this field, we must still approach this area with thoughtfulness, proper diagnosis and careful case selection. These and some other problems of implantology cannot be overemphasized.

Implantology is no panacea for dentistry but with properly selected cases we can eliminate many problems that previously had little or no alternatives.

*Tatsuo Hori, DDS*
*2 Carlton St*
*Toronto 200, Ont*

# EXECUTIVE DIRECTOR'S PAGE

W. G. McIntosh, DDS

**CDA priorities**

The Board of Governors, back in 1968, realized that anticipated revenue from corporate members' grants was inadequate to offset the rising cost of existing CDA services.

Meanwhile members were requesting additional services. So the Board approved in principle to raise the corporate member grants from $40 to $65 per licensed dentist. Also in 1968, the Board decided the CDA should take a new look at its services and programs. In an effort to clarify them, the Board ordered an "aims and objectives" conference.

During 1969 and 1970 two such conferences were held. But the organizing committee, and later the Board as well, decided that the CDA should first update the procedures and mechanisms which guided the Association's activities—namely the by-laws. As a result, the two conferences concentrated on this assignment and approved major amendments to the by-laws.

Now three years later, some—but not all—corporate members have increased their per capita grants to $65. However, inflation over the last few years was higher than expected back in 1968, and there doesn't seem to be any change in the uptrend.

The profession meantime continues to press for expansion of CDA services and programs. At the 1970 Board meeting, $75,000 had to be slashed from budget requests for 1971 activities.

As long as the present inflationary trend continues, the Association must increase its revenue, continue to cut back on services and programs, or find less costly ways of providing them.

The Executive Council, at its meeting in March, showed it was well aware of the looming dark clouds. It appointed a small ad hoc committee to delve into the problem. I'm hopeful that the committee's report will be in the Board's hands at the annual meeting in Ottawa in September.

Edmonton's Hector MacLean chairs the committee. His fellow members are Wes Munsie, Vancouver; Bill Deacon, Ottawa; and Henri Brouillet and Hubert La Belle from Montreal.

The committee's terms of reference are to study and make recommendations on the Association's:

- Objectives
- Services, including costs, utilization and alternative methods of providing such services
- Priorities of services
- Staff adjustments to provide the services
- Headquarters facilities, including a study into the possibility of moving operations to Ottawa.

The committee has, among other considerations, turned its attention to the services and programs which are now being provided, others that should be provided, alternate ways of providing them, and priorities.

The future of CDA could depend on the effectiveness of the committee's efforts.

I have elaborated on the situation to remind CDA members of the Association's difficult position. The Executive Council has taken positive action to find a solution, but we need every dentist's help in finding satisfactory solutions.

# Dialogue

*Dental mechanics in Ontario, Quebec and Nova Scotia are making new overtures to permit them direct dealings with the public. Mindful of these pressures, the Wells Committee on Dental Auxiliaries suggested the creation of dental technologists from dental technicians who complete additional accredited training. Technologists would, on a dentist's prescription, be allowed to fabricate and fit dentures directly for the public — but only in dental offices or clinics, and only under the supervision of a dentist. This month Manitoba Dental Association President A. J. Shinoff, Halifax prosthodontist D. V. Chaytor and Victoria general practitioner H. G. Pettapiece offer their opinions on this thorny question.*

## Expand the hygienist's role in prosthodontics

The dental health needs of Canadians are not being met. The Wells Committee on Dental Auxiliaries, quite rightly, has recommended an expansion in the services offered by auxiliaries as a means of helping the dental profession meet these needs. It is hoped that the preparation of these auxiliaries to perform specific services will be as adequate as is the dentist's preparation to perform the same services. The reduced educational requirement for auxiliaries should come from a reduction in the number of services that will be performed by them, rather than from a reduction in the quality of education they receive.

The dentist's broad educational background should maintain his position of prime responsibility for the health and safety of the patient. The dentist can best accept this responsibility if he is, in fact, the head of a team and not just the available consultant that may or may not be used by independent auxiliaries.

The evolving role of the dentist will be one of diagnosis, treatment planning and treatment evaluation. A system that shares the responsibilities and duties in delivering dental health care should lead to increased proficiency on the part of all involved.

I believe that some prosthodontic procedures can be safely delegated to trained dental auxiliaries. The dentist who supplies prosthodontic treatment should not be thought of as merely a purveyor of mechanical devices. To render adequate prosthodontic treatment he must draw on his broad educational background in the social, biological, medical and dental sciences.

Dentists have traditionally delegated to the dental technician the so-called technical phase of denture construction. Given adequate information in the form of impressions or casts, jaw relation records, and tooth shade and mould numbers, the technician has been able to perform his duties well. A good technician has every reason to be proud of good work. He has a respected role to play.

The Wells Committee has recommended that, with additional training, a dental technician may become a dental technologist. This dental technologist would then be permitted to treat the prosthodontic patient directly, albeit under the supervision of a dentist. I fear that such a recommendation reduces the position of a dental technician to that of a stepping stone to the position of dental technologist. I would also fear a natural gravitation of the ambitious and competent to the proposed field of dental technology. The dental team could thus be weakened rather than strengthened.

Other possibilities were open to the committee. I suggest that the best of these was to expand the role of the dental hygienist in the area of prosthodontics. Admittedly, the committee also entertained this possibility. The field of dental hygiene, since its inception, has been concerned with direct patient care. The education of the dental hygienist is aimed at preparing her for the clinical situation. To prepare her to deliver prosthodontic care would only require additional training in specific prosthodontic procedures. She appears, therefore, to have an immediate advantage over a dental technician who would not only require training in clinical prosthodontic procedures but would need reorientation to prepare him for direct contact with the patient. In considering this approach, I see little reason why males should not be admitted to dental hygiene.

I suggest that the best combination for the delivery of prosthodontic services to Canadians consists of the dentist, dental hygienist, both assisted by dental assistants, and backed up for technical service by the dental technician, and for consultation and referral of complex problems by the prosthodontist. The definition of the roles of all concerned, and education to fulfil these roles, should help produce a harmoniously working, effective team that is not splintered by desires for independence and for progression "out of a respected role."

*D. V. Chaytor*
*Faculty of Dentistry*
*Dalhousie University*
*Halifax, NS*

## Who will employ the dental technologists?

I interpret the intended value of dental technologists as a means of offering the public good prosthodontic treatment by qualified personnel for less cost, while releasing the dentist for other duties.

I agree with the purpose but I cannot envision this approach for three reasons:

1. How many will seek qualification?
2. Who will hire them?
3. What will be the role of those who are not hired?

If British Columbia's program of upgrading dental assistants to certified dental assistants is an indication, a large number of dental technicians will seek this training. Our Academy of Dentistry denture clinics may hire a dozen; so may two or three group practices in

the province where there is a sufficiently large volume of prosthetic care. In larger cities, they can possibly work for one or more dentists on a daily basis. Or perhaps they may work for laboratories and come out to the dentist when needed.

But I doubt whether these different employment opportunities could absorb all the dental technologists. The remainder might well be tempted to seek registration as licensed mechanics or drift into illegal practice.

The Wells Report made some highly pertinent observations in this connection; it condemned as "most inappropriate for those provinces (BC and Alberta) to license persons with dubious qualifications and a record of illegal practice to perform their services directly with the public." These licensed mechanics have concentrated in larger cities where their fees, though initially low, have risen steadily as their overhead and their clientele has increased.

How else can we create a (prosthodontic) auxiliary who can fit into dental practice anywhere in Canada? Do we really need a new auxiliary for this purpose? Or can we turn to the dental hygienist who, by training, experience and professional stature, could be upgraded in prosthodontics?

This seems a logical progression since in British Columbia certified dental assistants can now expose radiographs and perform rubber cup prophylaxis and fluoride application, and take preliminary impressions. These added duties could also help the private practitioner, especially in small isolated communities, where he may be unable to provide full-time employment for a conventional dental hygienist. Increasing her scope would certainly expand her opportunities for work far beyond those of the proposed dental technologist.

*H. G. Pettapiece, DDS*
*500 — 1120 Yates St*
*Victoria, BC*

## A viewpoint from Manitoba

On reading the editorial in the June issue the following thoughts come quickly to mind. Why must Ontario or Quebec become involved with a problem before the CDA is moved to writing editorials? Is it just another example of this national organization's inability to get emotional about problems occurring in the hinterlands? Why is it that no mention was made in the editorial about the battle as it occurred in Manitoba?

I mention Manitoba not only because I was intimately involved in recent legislative battles but because it was in Manitoba that the classic confrontation took place. I refer to it as classic because it was here that every aspect of this form of quackery was argued and debated in the legislature. This occurred with ever-increasing intensity for a period of 20 years and it is the opinion of many that the matter would as yet continue unresolved were it not for the election of the NDP government to power in this province. It was during this 20 year period that first British Columbia and then Alberta fell to the dental mechanics' onslaught.

Saskatchewan's legislature at one time adopted and later rescinded legislation regarding the dental mechanic. Little difference, however, as the judiciary in that province showed little desire to prosecute offenders of the dental act of Saskatchewan.

My advice from a distance is forget all about teaching legislators the fine points of prosthodontics. No one is arguing with any conviction that we are not better qualified to perform this servce.

The politicians will say eventually in Ontario as in the West, if people want this type of service with the attendant risks they must be allowed access to it legally.

I am sure many of my colleagues reading this letter know of the case that was fought through the BC Supreme Court—a case of documented proof of a dental mechanic constructing a denture over a pre-existing carcinoma of the palate. There were also cases of dental mechanics who extracted teeth, recommended the extraction of teeth, scaled teeth, made partial dentures and even bridges. Despite the fact that all these offenses were brought to the attention of the legislators, it had very little effect on their thinking.

So what have the CDA or the other corporate members learned from all of this? Absolutely nothing! Have they called on us of Manitoba to give them the full benefit of our experience? No! But what can they need from little Manitoba? My answer, in a word: "Plenty!"

We must not fall into the self-defeating trap of attempting to compete with dental mechanics on a low cost basis. Clinics as we have had here in Manitoba for 12 years do serve a purpose, but not that of eliminating the dental mechanic. Accept all these facts. Realize also the politicians' dilemma and give them a way out, such as that outlined by the Wells Committee. With proper government support, educational programs can then be set up to train dental mechanics for work in government clinics where, under supervision of dentists, they can perform low cost denture service for those who ask for it.

This service could even be extended into private practice if the original venture proves successful. We must be prepared to accept change even though these changes may run contrary to all our concepts of the past. We must also be in the forefront of planning for these changes that will ultimately provide more dentistry for more people at a cost they can better afford.

*A. J. Shinoff, DDS*
*President, Manitoba Dental Association*
*1357 Main St*
*Winnipeg, Man*

*The Journal has commented editorially about dental mechanics and related matters on 11 occasions since 1961. (Ed)*

# Dentistry in the news

## National Convention

### Class reunions

The following groups have scheduled class reunions at the national convention:

McGill University 1956. Contact F. R. Anfossie, 120 Holland Ave, Ottawa 3, or D. J. Beauprie, 35 Alder Crescent, Deep River, Ont.

Dalhousie University 1959. Contact C. G. Travis, Suite 4, 1729 Bank St, Ottawa 8, Ont.

University of Toronto 1940. Contact R. E. Feasby, Ontario Department of Health, 7th Floor, 1 St. Clair Ave W, Toronto 195, Ont.

University of Toronto 1941. Contact Benjamin Gross, 3077 Bathurst St, Toronto 392, Ont.

University of Toronto 1951. Contact Lionel Metrick, 75 Albert St, Ottawa 4, Ont.

## The Association

B. Isabel Brown

### Isabel Brown leaves the CDA

B. Isabel Brown, director of the Bureau of Economic Research and assistant executive director, Canadian Dental Association, resigned from these positions on June 30 because of increasing domestic responsibilities. Mrs. Brown had been with the Association since February 1960.

In her more than 10 years on the CDA staff, Mrs. Brown was responsible for two surveys of dental practice–1963 and 1968. She assisted several CDA councils, the Board of Governors and some corporate members. Mrs. Brown also had a key role in the preparation and drafting of numerous Association briefs–most notably that to the Hall Royal Commission on Health Services.

An honours BA (Economics) graduate of the University of Toronto, Mrs. Brown held several responsible positions before joining the CDA. She has been appointed a special lecturer in community dentistry (dental economics) at the Faculty of Dentistry, University of Toronto. Mrs. Brown also plans to pursue further studies leading to a master's degree in economics. She will continue to serve the CDA as a part-time consultant.

## Canada and the Provinces

### Doctor Dexter named to Nova Scotia Health Council

The president of the Nova Scotia Dental Association, C. E. Dexter, of Halifax, has been appointed to the recently formed Nova Scotia Council of Health, it has been announced.

C. E. Dexter

The function of the council is to advise and assist the health minister on matters relating to health services, facilities and resources in the province.

Health Minister Scott MacNutt said the council will immediately become involved in the reorganization of the administrative structure of the delivery of health services in the province. It will also take "a look into dental services in the province" as requested in a resolution passed at the spring session of the legislature.

The council has the power to review any matter at the request of the minister, promote interest in improving health services, facilities and resources, assist health-related organizations and co-ordinate the activities of regional health councils.

### Four foreign dentists pass NDEB exam

Four of 41 candidates were successful in a recent examination for foreign dentists conducted by the National Dental Examining Board of Canada.

The 41, representing 23 different countries, had to match the minimum standards required of Canadian candidates in each of a written, a preclinical and a five day clinical examination. Included in the clinical phase were an MOD amalgam restoration, an MOD inlay, a Class V gold foil restoration, impressions for complete upper and lower dentures, face-bow transfers to an anatomical articulator, and wax-up and try-in of the dentures.

Nineteen candidates who failed in more than two written subjects could not proceed to the preclinical and clinical tests. Two failed to reach a minimum standard in the preclinical examination, while 16 of the 20 who proceeded to the third phase failed in the clinical examination.

The test was the first foreign dentist examination held by the NDEB as requested by all provinces. Candidates wrote in either English or French. Language did not appear to be a barrier in any phase of the examination.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on June 30, 1971:

*Fixed Income Fund* $11.727;

*Common Stock Fund* $24.178.

Total assets (market value) of the plan were $10,857,269.57

The following portfolio purchases occurred during the preceding month: 5,000 shares Alberta Gas Trunk A, 500 shares International Nickel Co, 9,200 shares Maclean-Hunter, 3,000 shares

Placer Development, and 5,000 shares Union Gas.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## International Items

### Barbados wants to expand dental program

Barbados hopes to recruit three full-time dentists and six New Zealand-style dental nurses to expand the island's school dental program, according to C. A. Burton, permanent secretary of the Barbados Ministry of Health and Social Welfare. He was speaking during a recent interview with CDA Associate Editor M. P. Tenenbaum of Montreal.

Mr. Burton said he would welcome one or more Canadian dentists under the CDA-Canadian Executive Service Overseas plan of assistance to Caribbean islands provided they would stay long enough to make their visit economically justifiable.

In the meantime Barbados is looking to Jamaica and possibly Trinidad as a source of dental nurses. A training school of dental nurses was opened in Jamaica last year. Also last February the Commonwealth Caribbean Medical Council, a grouping of island medical associations, urged the establishment of a dental school at the University of the West Indies in Jamaica. Commenting on this suggestion, Mr. Burton said preclinical courses for the university's medical students could be expanded to meet the needs of dental students and the school for dental nurses could be adapted to train dentists as well.

The official also had high praise for Mrs. Anne Bosy, a Canadian dental hygienist who worked in Barbados until last year. "We were really impressed with what she did, and we are hoping to get another Mrs. Bosy," he said.

The Barbados government also plans to study the feasibility of fluoridating the island's water supply.

### Detroit meeting set for November 21-23

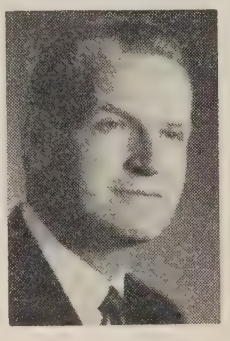
The Detroit District Dental Society will present its "Dentistry is Prevention" Mid-Autumn Meeting November 21-23 at the Detroit Hilton, it has been announced. Stanley Nelson and Sumter Arnim will be the guest essayists.

Canadian dentists who would like to participate as table clinicians should contact Gordon Robers, Executive Secretary, Detroit District Dental Society, 319 Fisher Building, Detroit, Michigan 48202, USA, for an application form and further information concerning the meeting.

## Dental Organizations

### NDEB elects Doctor Purves

J. D. Purves of Toronto has succeeded R. B. DeWare of Moncton, NB, as president of the National Dental Examining Board of Canada for 1971-73. D. B. Proctor, Winnipeg, was elected vice-president and registrar. Other members of the executive are J. M. Calvert, Edmonton, and Norman Layton, Halifax. Mrs. Juliette Matte, Ottawa, is executive secretary.



J. D. Purves

Hubert LaBelle

### Quebec association re-elects Doctor LaBelle

Hubert LaBelle, Montreal, was re-elected president of the Quebec Dental Surgeons Association on June 29. Other officers are Yves Poulin, Quebec City, first vice-president; and Marcel Tenenbaum, Montreal, second vice-president. P.-Y. Lamarche, Claude Chicoine and Roger Grégoire, all of Montreal, were named secretary, treasurer and councillor. P.-P. Prud'Homme, Shawinigan, is also a councillor.

P. J. Lacoursière, Trois Rivières, was re-elected QDSA speaker.

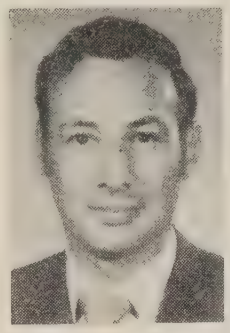
### Doctor Durand heads Quebec periodontists

The Quebec Association of Periodontists has new officers. They are Claude Durand, president; E. M. Hershenfield, vice-president; and Jean Turgeon, secretary-treasurer. All are from Montreal.

### Doctor Wainberg heads Mount Royal Dental Society and Montreal Alpha Omega

A. S. Wainberg has been elected president of the Mount Royal Dental Society and the Montreal Alumni Chapter of Alpha Omega Fraternity. He succeeds E. Slapcoff. The MRDS groups 230 Montreal-area dentists and this year celebrates the 50th anniversary of its foundation.

Also elected were: H. Ptack, vice-president; M. P. Tenenbaum, corresponding secretary; L. L. Prosterman, recording secretary; and F. I. Muroff, treasurer.



A. S. Wainberg

### Ontario Assn sets PR conference

Participants attending the Ontario Dental Association's Public Relations Conference September 17-19 will learn how to develop a newsletter and consider the role and duties of dental society officers.

"How to Develop and Maintain a Successful Local Society" will be the theme of the main speaker, Peter C. Goulding, assistant executive director for communications, American Dental Association.

Other sessions will include discussions on parliamentary procedures, emergency dental service, mediations committees, guest speakers and public health programs.

A special manual will be prepared outlining the role and duties of Ontario Dental Association governors.

The conference will be held at Fern Resort, Orillia, Ontario. Two delegates from each local dental society in Ontario may attend. The registration fee is $60.

For more information, contact K. F. Pownall, Secretary, Ontario Dental Association, 230 St. George St, Toronto 180, Ont.

### Hypnosis society will hold workshop Sept 11-12

The Ontario Society of Clinical Hypnosis has invited Canadian dentists to attend a two day workshop at McMaster

University, Hamilton, Ont, September 11-12. R. V. August, Muskegon, Michigan, is the workshop director and Kay F. Thompson is the dental director. The rest of the faculty consists of 13 Ontario physicians and dentists in varied specialties who use hypnosis regularly in their practices.

For further information, please write to W. N. Tytaneck, 7 Welland Ave, St. Catharines, Ont.

### Two analgesia courses set in Winnipeg

The Winnipeg Analgesia Study Club will sponsor two courses on nitrous oxide relative analgesia September 25-26 and September 27-28 at the International Inn, Winnipeg.

For further information, contact E. R. Helgason, Secretary, Winnipeg Analgesia Study Club, 1180 Pembina Highway, Winnipeg 19, Man. Telephone (204) 452-2033.

### Toronto Alpha Omega offers implant seminar

The Toronto Chapter of Alpha Omega Fraternity will sponsor a continuing education seminar on dental implants, October 28. Leonard Linkow, New York City, will be the guest lecturer.

For further information, please contact W. S. Prusin, 168 Eglinton Ave, W, Toronto 310, Ont.

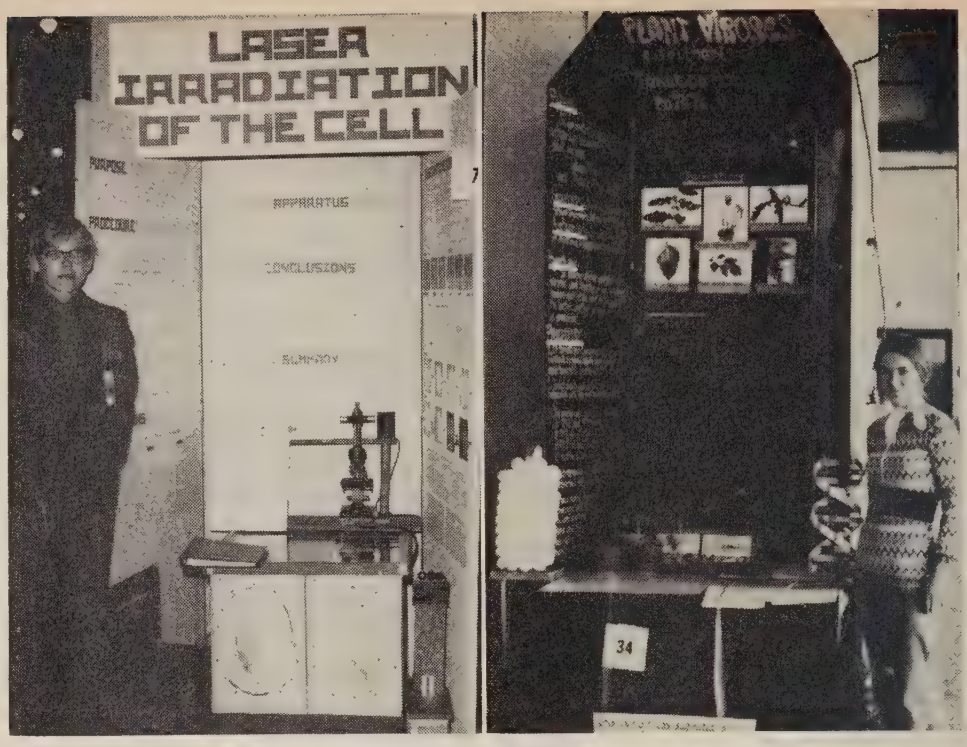
### Toronto winter clinic set for November 25

Taxes and group practice are two of the subjects in line for a complete airing when the Toronto Academy of Dentistry holds its annual winter clinic November 25.

Martin Chasson, a leading tax consultant, will deal with the recent federal budget and tax reform proposals and how they affect the professional man. William Marshall of Marquette University, Madison, Wisconsin, will discuss "Group Practice–the Future of Dentistry."

"Intravenous Sedation in General Practice" is the topic of the University of Western Ontario's A. G. Parnell, while Charles Miller of the University of Pittsburg will explain how to "Improve Your Inlays, Crowns and Bridges," and Harold Ortman of the State University of New York at Buffalo will demonstrate the "Role of Complete Denture Occlusion in Residual Ridge Resorption."

Other speakers include D. Cowan, S. Fireman, J. G. Linghorne, D. Kramer, R. L. Moran, K. N. Munro, D. C. Smith, G. E. Sparrow and P. A. Watson.




Winners of $100 prizes from the Canadian Dental Association, Brian Maki, 15, of Victoria and Jane Douglas, 17, of Belleville, Ont, are shown with their exhibits at the Youth Science Foundation's tenth Canada-Wide Science Fair in Edmonton, May 11-15. The CDA is one of the sponsors of the Youth Science Foundation which promotes extra-curricular science activities and organizes the annual fair.

For further information, please contact Paul Chapnick, 265 St. Clair Ave W, Toronto 195.

## Dental Education

### Students at Université de Montréal win War Memorial Essay awards

The CDA Council on Education has announced the names of prize-winning students in the 1970-71 War Memorial Essay Competition. They are: Alain Gervais, who won the $200 first prize, and Joseph Michaelson, winner of the $100 second prize. Both are students at the Université de Montréal.

The awards go to the two final year students at Canadian dental schools who submit the best essays on an assigned topic. This year's subject was "A Practical Approach to Preventive Dentistry; Une approche pratique à la dentisterie préventive." The awards commemorate Canadian dentists who gave their lives in World Wars I and II.

### First graduates from Saskatchewan school likely in 1972

The University of Saskatchewan may graduate its first dentists in the fall of 1972–earlier than previously expected, because the final three academic years in dentistry will run continuously over about 26 months.

It takes six academic years of eight months each to obtain a dental degree from the University of Saskatchewan. The first year is devoted to predental studies and the rest to preclinical and clinical dentistry. By telescoping the final three years, the university will prepare students for their dental degrees in just over five calendar years.

The first class of 10 students entered the College of Dentistry in the fall of 1968, following their predental year. They completed their third academic year last April. After a brief summer break they will continue their studies so as to complete the final academic year before the 1972 fall convocation.

K. J. Paynter, dean of dentistry, says that the continuous scheduling in the final three years, which is a new feature in Canadian dental education, offers several advantages. Students will finish their studies eight months earlier than they otherwise would, and the university dental clinic will be used more efficiently, since it will be in operation the year round.

### CFDE awards $38,400 in fellowships

Twelve dentists will receive a total of $38,400 in teacher training and research

fellowships for the 1971-72 academic year. The announcement was made by C. E. Peirce, Toronto, vice-chairman of the Canadian Fund for Dental Education.

The 1971 awards went to:

**N. Brien,** Montreal, first year prosthodontics at Indiana University;

**T. Duquette,** Montreal, first year oral medicine and diagnosis at Indiana University;

**H. C. Levant,** Toronto, second year prosthodontics at the University of Toronto;

**C. H. Remise,** Montreal, completing studies in orthodontics at Indiana University;

**P. W. Stutman,** Montreal, first year restorative dentistry at Boston University;

**J. D. Townsend,** Montreal, first year restorative dentistry at the University of Washington;

**R. S. Turnbull,** Toronto, completing studies in periodontics at the University of Toronto; and

**M. Werbitt,** Montreal, first year periodontics at Boston University.

CFDE fellows who had their 1970-71 fellowships renewed are:

**E. E. Chesko,** Winnipeg, completing studies in periodontics at Boston University;

**L. K. Haglund,** Montreal, completing studies in periodontics at Boston University;

**V. B. Shaffner,** Halifax, completing studies in prosthodontics at Indiana University; and

**E. A. Stang,** Edmonton, completing studies in restorative dentistry at the University of Washington.

Since 1964 the Fund has provided over $180,000 to help train teachers and research workers for Canadian dental schools. "The CFDE has now awarded 98 fellowships to 67 dentists, 42 of whom have completed their training and are now teaching or doing research in Canada," said Mr. Peirce.

This year the CFDE Advisory Committee on Fellowship Selection, chaired by W. H. Feasby of the University of Western Ontario, reviewed 21 applications for assistance. Also serving on the committee were R. C. Burgess and H. A. Hunter, University of Toronto; and Jean Nadeau, Université de Montréal.

### Dental auxiliaries awarded CFDE scholarships of $2,000

Trustee Sheppard Margolese, Vancouver, has announced that in 1971 the Canadian Fund for Dental Education will offer eight scholarships to encourage dental auxiliary students.

Five of the scholarships, each worth $200, have been allocated to schools of dental hygiene. One $500 scholarship will be awarded to a dental assistant teacher to upgrade her skills. Two $250 scholarships will go to dental technology students attending George Brown College in Toronto.

"The Fund is pleased to assist these young people who will soon become valued members of the dental health team," said Doctor Margolese.

### CFDE grants $20,000 for accreditation of postgraduate programs

The Canadian Fund for Dental Education has agreed to provide up to $20,000 to enable the Canadian Dental Association's Council on Education to inaugurate an accreditation system for Canadian programs of postgraduate and graduate clinical education. Announcement of the grant was made by CFDE Trustee M. J. Lipkind, Calgary.

"The first surveys of our dental schools will be particularly significant since they will establish Canadian standards for formal accreditation on a basis similar to those employed in the United States," said Doctor Lipkind. It is anticipated that reciprocal recognition between the CDA and the American Dental Association in postgraduate course accreditation can be established, as it has for undergraduate programs, he added.

In making the announcement, Doctor Lipkind noted that work would commence immediately and it is hoped all schools will be surveyed by early 1972.

### Education fund awards $12,500 to dental schools

Each of 10 Canadian dental schools has been awarded $1,250 in unrestricted grants according to Henri Brouillet, Montreal, a trustee of the Canadian Fund for Dental Education. The money is available on application from each school.

"Reports from the deans indicate that these awards upgrade teaching by providing money for faculty seminars and refresher courses for staff members, just to mention two of the many ways the grants are used," said Doctor Brouillet.

Since 1965 the Fund has awarded $59,000 in unrestricted grants to dental schools.

### Doctor Cleall awarded $1,500 CFDE fellowship

J. F. Cleall, head of the orthodontic department at the University of Manitoba Faculty of Dentistry, is the first winner of a new fellowship for established dental school teachers, according to M. E. Bower, chairman of the Board of Trustees of the Canadian Fund for Dental Education.

The award will enable Doctor Cleall to go to universities in Turku, Finland, and Nijmegen, Holland, where he will study various systems of preparing dental students and auxiliaries for the efficient delivery of orthodontic service to their communities, said Mr. Bower.

Purpose of the annual award, sponsored by Warner-Lambert Canada Limited, is to provide an opportunity for an existing teacher in one of the Canadian dental schools to refresh and extend his knowledge in any field of dental education or education research.

### Student table clinics to be funded by CFDE

The L. D. Caulk Company of Canada Limited and Dentsply Canada Limited have made a special grant to the Canadian Fund for Dental Education to underwrite the cost of presenting student table clinics at the CDA's 1971 national convention, according to M. E. "Bud" Bower, chairman of the Fund's Board of Trustees.

The dean of each dental school has been invited to select an outstanding student to present a table clinic and to receive an expense-paid trip to Ottawa. A competition will be held and clinics will be judged in two categories: (1) clinical application and techniques, and (2) basic science and research. First, second and third awards of $150, $100 and $50 respectively will be made in each of the two categories. The program is administered by the CDA's Council on Education.

"Caulk and Dentsply have been substantial supporters of CFDE (over $30,000) since its inception in 1962 and we are particularly grateful for this most recent contribution which undoubtedly will benefit dentistry in Canada," said Mr. Bower.

## Economics

### Quebec passes children's dental care law

The National Assembly passed Bill 69 on June 11 approving free dental care for children under seven under Quebec's medical care insurance plan.

Social Affairs Minister Claude Castonguay said the legislation will permit some 540,000 young Quebeckers to benefit. The dental care program could be expanded later to include other age groups, he said. The plan will cost about $5 million.

The Ontario government is said to be working on similar legislation which will eventually provide free dental care for the province's school children.

Health Minister A. B. R. Lawrence said that the Ontario proposal is similar to legislation passed by Quebec.

## Quebec association recommends prevention

The Quebec Dental Surgeons Association has presented to the provincial government draft proposals for dental coverage of children to age seven.

The association's recommendations deal with preventive and restorative services. Extraction of primary and permanent teeth is not included.

The proposals, which would affect dental care rendered in private practice, were transmitted June 28 to representatives of the Quebec Department of Social Affairs.

## Oral surgery costs double the estimate in Quebec

Oral surgery covered under the Quebec medicare has cost nearly twice as much as originally foreseen, according to the Quebec Health Insurance Board.

In the first four months the QHIB paid out $1.9 million for these services instead of the $1 million predicted in October 1970. The four month period preceded the signing of a collective agreement on February 8 between the Quebec Dental Surgeons Association and the government. The agreement, which runs to June 30, 1972, incorporates criteria which limit the government's liability to pay a dentist for service rendered in a hospital (see also page 133, April Journal).

## How tax changes will affect dentists

Dentists will have to list fees as deferred income when they are billed and not when payment is received, under a tax change proposed by Finance Minister Edgar Benson.

They currently compute income on the basis of fees received. Expenses will be computed against income when incurred and not when paid under the proposed tax treatment.

The change is to become effective after December 31, 1971. Because of difficulty in valuing unbilled time, work in progress need not be brought into income prior to billing unless the taxpayer chooses to do so.

To provide orderly transition, receivables on hand when the new tax system becomes effective can be brought into income over a number of years. The taxpayer will pay tax on the higher of income computed on a cash-basis or billed-basis each year until the original total of deferred income is eliminated. The deferred total must be reduced by at least 10 per cent each year by professional corporations.

### *Scholarships, fellowships*

Scholarships, fellowships and bursaries in cash or kind will be taxable with a $500 exemption. Research grants will be taxable, with the cost of equipment, fees, travel and laboratory charges deductible.

A student with scholarship income will typically have exemptions and deductions totalling at least $2,700. He would be exempt on $500 of the scholarship income, he would have the basic exemption of $1,500, a deduction for his tuition (say, $600) and the standard deduction of $100.

Canadians who leave Canada on a temporary basis to study or teach will continue to be taxed by Canada.

### *Retirement plans*

Canadians will be encouraged to put more money into retirement plans through increased deductible contribution limits for registered retirement savings and pension programs.

The bill raises the limits on contributions to registered pension plans to $2,500 a year from $1,500. In the case of a pension plan this means a combined employee-employer contribution of up to $5,000 a year may be deducted, up from the current maximum of $3,000.

Contribution limits on registered retirement savings plans will also be raised to $4,000 (or 20 per cent of earned income) from $2,500.

### *Employment expenses*

The tax reform proposals would permit tax deductions for entertainment and convention expenses, but social and recreation club dues will no longer be permitted.

The white paper proposed denial of deductions for all entertainment or convention attendance. It would not have prohibited the expenditures but would have made them non-deductible items.

The new proposals will limit deduction of convention expenses to two conventions a year and certain geographic restrictions.

**TAX PROPOSAL HIGHLIGHTS**

| | |
|---|---|
| *Professional fees* | Taxable on an accrual basis instead of a cash basis. |
| *Fellowships, scholarships, bursaries* | Taxable with an annual exemption of $500. |
| *Research grants* | Taxable with deduction for research expenditures. |
| *Pension plans, registered retirement savings plans and deferred profit-sharing plans* | Limits increased to $2,500 for pension plans and to $4,000 for retirement savings plans. Withdrawals taxed at ordinary rates (but may average or defer tax under new rules). |
| *Club fees, convention expenses, entertainment costs* | Yachts, lodges and club dues disallowed. Reasonable entertainment and convention expenses continue to be deductible, with geographical limitation on conventions. |
| *Medical expenses* | List of allowable expenses increased to include training institutions for disabled persons and prescribed appliances and equipment. Premiums to plans other than government are classed as medical expenses. Expenses for which taxpayer has been reimbursed under a plan not classed as medical expenses. Employers' contributions to all government plans result in taxable benefit. |
| *Unemployment insurance* | Contributions deductible; benefits taxable. |
| *Charitable donations* | Limit on donations 20 per cent of net income. Donations to national amateur athletic associations qualify. |

### *Medical expenses*

As proposed in the white paper, the bill provides for three general adjustments in treatment of medical expenses.

Amounts contributed by an employer on behalf of his employees to a public medical care plan will be a taxable benefit to the employee (but this will not include payment for retired employees).

Medical expenses for which an individual has been reimbursed under an insurance plan may not be treated as medical expenses for tax purposes.

Premiums paid by an individual to non-government medical or hospital plans will be classed as deductible medical expenses.

The bill also expands the existing list of deductible medical expenses to include payments to a school or other institution for the care and training of mentally or physically handicapped or disabled persons.

### Alberta service corporation announces new prepaid plans

An indemnity prepaid dental co-insurance plan for University of Alberta staff began on August 1, it has been announced. About 1,500 university personnel and their families – totalling approximately 5,000 persons – will be covered under the agreement signed between the university administration, the University of Alberta Academic Staff Association and the Alberta Dental Service Corporation.

Benefits – to be provided on a first day, first dollar basis – include diagnosis, preventive services, complete periodontal and endodontic therapy, and restorative services including amalgam and synthetic fillings. Gold inlays are covered when a tooth cannot otherwise be restored to normal contour and contact. So are crowns and bridges when no other restoration proves adequate.

A wide range of prosthodontic services are covered as are surgical procedures and paedodontic services. The plan also includes an orthodontic option with benefits based on 50 per cent of the Alberta Dental Association fee schedule, with a maximum of $500 per case.

A dentist may charge his "usual fee" and patients will be reimbursed on the basis of 75 per cent of the Alberta Dental Association fee schedule.

The Alberta Dental Service Corporation has also announced a prepaid plan for employees of Les Koch Motor Sales Ltd of Edmonton. About 100 employees and their dependants – totalling 300-400 persons – will participate.

Negotiations are proceeding with two other groups and an early announcement of the inauguration of additional plans is anticipated.

### New unemployment insurance regulations

New legislation governing Unemployment Insurance went into effect June 27, 1971. The Executive Director's column in the June issue of the Journal (p 208) was prepared before these changes were received.

Accordingly, paragraphs 3 (b) and 4 (a) and (b) on p 208 are no longer valid because the new regulations remove the earnings ceiling of $7,800 at which an employee hitherto ceased to be insurable.

If any doubt exists regarding the insurability of dentists' employees, please contact the nearest office of the Unemployment Insurance Commission.

## Dental Equipment

### Bristol-Myers enters dental equipment field

The Pelton & Crane Company of Charlotte, North Carolina, has been merged into the Bristol-Myers Company, it was announced on July 1.

The 71 year old dental equipment manufacturing firm will continue to operate as a separate unit under the supervision of Bristol Laboratories Division of Syracuse, New York.

Pelton & Crane is a well known supplier of equipment for medical and dental offices. Its principal products are dental lighting, autoclaves and sterilizers, air dryers, air compressors and evacuators, and dental consoles.

## Fluoridation

### Referendum losses in New Brunswick

Fluoridation plebiscites met defeat in two New Brunswick communities on municipal voting day, June 14.

Fluoridation lost in Saint John by 15,815 votes to 6,972. Hartland voters also defeated the measure by 324 votes to 87.

### South Dakota thwarts bid to reverse compulsory fluoridation

South Dakota kept fluoridation in the United States' first state-wide referendum, held last November to repeal the fluoridation law enacted in 1969. South Dakota was the sixth of seven states to enact legislation requiring fluoridation.

The South Dakota law requires fluoridation for all communities over 1,000 in population with deadlines in 1970 and 1972. Some 66 towns with a population of 214,000 are involved.

### 92 million Americans receive fluoridated water

At the end of 1970, 92 million Americans were receiving fluoridated water according to the US Public Health Service. This total includes 83,752,771 persons living in communities with controlled fluoridation, and 8½ million people receiving naturally fluoridated water.

Bills for state-wide fluoridation were defeated in Georgia, Oregon and Montana. A bill to require fluoridation of all communities with more than 500 persons was introduced in the Kansas legislature.

## Deaths

Mitchell, Arnold Wilberforce. 69. Montreal. McGill University, 1925. 24-2-71.

Morin, Aimé. 71 Hull, Qué. Université de Montréal, 1924. 10-4-71, Membre associé de l'ADC.

Peake, Henry Charles. 70. Toronto. Royal College of Dental Surgeons of Ontario, 1925. 2-7-71. Survived by Olive (wife); Judy (daughter); and Edythe (sister).

## In memoriam

### Dwight S. Coons

Dwight S. Coons of Boca Raton, Florida, died suddenly in Rome, Italy, on June 3, 1971. He was 74.

A 1923 graduate of the Royal College of Dental Surgeons of Ontario, Doctor Coons practised in Hamilton, Ont, until 1939 when he was summoned to Ottawa to direct the formation of the Royal Canadian Dental Corps which, under him, eventually had 600 field clinics in operation in Europe, Britain and Africa.

Besides his wife, Alice, Doctor Coons is survived by a son, Doctor D. Owen of Dallas, Texas; two daughters, Mary-Lou of New York City and Beverly S. of Portola Valley, California; a brother, Donald, and sister, Doris, both of Burlington, Ont; and five grandchildren.

## Le Congrès national

### Les congressistes entendront le Dr Leatherman

Le Dr G. H. Leatherman, de Londres, directeur général de la Fédération Dentaire Internationale, a accepté de prendre la parole au Congrès national de l'ADC, à Ottawa, durant la réunion du petit déjeuner le vendredi 1er octobre.

Le Dr Leatherman parlera de la FDI et plus particulièrement du congrès de Mexico en 1972 et du congrès prévu pour Toronto en 1977.

### Assemblée du Collège royal le 30 septembre

Le Collège royal des chirurgiens-dentistes du Canada annonce la tenue de son assemblée annuelle le 30 septembre durant le Congrès national de l'ADC.

La réunion annuelle du collège, qui est ouverte à tous les membres, commencera à 8h. du matin à l'Hôtel Château Laurier.

Le Dr H. M. Worth, éminent radiologue de Vancouver, donnera à 14h., toujours au Château Laurier, une conférence spéciale sur "La dysplasie fibreuse, comment elle peut concerner le dentiste et le spécialiste buccal".

L'assemblée débutera à 16h. au Centre national des Arts et sera suivie à 18h. d'une réception et d'un dîner pour les membres et leurs épouses, au même endroit.

## Chronique internationale

### Les chirurgiens buccaux canadiens à la conférence d'Amsterdam

Vingt et un chirurgiens buccaux canadiens ont assisté à la IVe Conférence internationale sur la chirurgie buccale, qui a eu lieu à Amsterdam, en Hollande, du 16 au 21 mai. Elle réunissait 600 chirurgiens buccaux de 49 pays.

Les Drs P. T. Smylski et Paul Chapnick de Toronto, ainsi que Paul Mercier de Montréal, y ont présenté des communications importantes. Les principaux symposiums portaient sur le sinus maxillaire et les tumeurs centrales des mâchoires qui ne sont pas d'origine dentaire. On y a aussi débattu des troubles de l'articulation temporo-mandibulaire et de leur traitement, des traitements chirurgicaux en orthodontie, des lésions traumatiques, de la chirurgie préprothétique, de la transplantation et de la greffe osseuse pour remplacer l'os détruit ou atrophié des mâchoires.

Les délibérations de la réunion de l'AICB, qui se tient tous les trois ans, seront toutes publiées. La prochaine conférence aura lieu en Espagne en 1974.

### La Barbade veut étendre son programme dentaire

Selon M. C. A. Burton, secrétaire permanent au Ministère de la Santé et du Bien-être de la Barbade, son pays espère recruter trois dentistes à plein temps et six infirmières dentaires du type utilisé en Nouvelle-Zélande pour étendre le programme dentaire de l'île. Ces propos furent recueillis lors d'un récent entretien avec le rédacteur ajoint du *Journal de l'Association Dentaire Canadienne* le Dr M. P. Tenenbaum de Montréal.

M. Burton a déclaré qu'il accueillerait avec plaisir un dentiste canadien, ou plus si possible, par l'entremise du projet d'assistance aux Antilles offert par l'ADC et le Service administratif canadien outre-mer. Il a ajouté néanmoins que ce ou ces dentistes devraient séjourner assez longtemps pour justifier ce déplacement du point de vue économique.

Entretemps la Barbade cherche du côté de la Jamaïque et peut-être de Trinidad comme sources possibles de recrutement d'infirmières dentaires. Une école qui forme ces infirmières a ouvert ses portes en Jamaïque l'an dernier. De plus en février dernier, le Commonwealth Caribbean Medical Council, un regroupement d'associations médicales antillaises, insista sur la création d'une faculté dentaire à l'Université des Antilles en Jamaïque. Selon M. Burton, les cours donnés aux étudiants en médecine avant la partie clinique des études, pourraient bien être étendus pour répondre aux besoins des étudiants en art dentaire; on pourrait de plus adapter l'école qui sert actuellement à la formation des infirmières dentaires, de façon à y entraîner aussi les dentistes.

De plus, ce haut fonctionnaire ne tarit point d'éloge sur Mme Anne Bosy, hygiéniste dentaire canadienne qui a travaillé à la Barbade jusqu'à l'an dernier. "Nous avons été vraiment impressionnés par le travail qu'elle a fait, et nous espérons bien trouver bientôt une autre Mme Bosy", a-t-il ajouté.

Le gouvernement de la Barbade prépare également une étude sur la possibilité de fluorer le service d'eau potable de l'île.

### Le congrès de la FDI à Mexico en 1972

Le 15e Congrès dentaire mondial de la Fédération Dentaire Internationale se tiendra à Mexico du 22 au 27 octobre 1972.

Tous les dentistes membres de leur association nationale, les membres des professions connexes, le personnel dentaire auxiliaire et ceux qui s'intéressent aux buts poursuivis par la profession sont invités à y assister.

Les participants devront verser un droit d'inscription. Les renseignements doivent être demandés au Comité d'organisation, 15e Congrès dentaire mondial, Ezequiel Montes 44, Mexico 4, DF, Mexico.

Les activités du congrès comprendront un programme scientifique établi par la FDI, une exposition scientifique, culturelle, industrielle et technique, ainsi que des activités sociales, des visites et des excursions. Les dames auront également un programme spécial.

Outre les exposés cliniques et la présentation de films, le programme scien-

tifique mettre l'accent sur la dentisterie préventive – surtout sur l'importance de la nutrition. Les distractions comprendront une corrida, du théâtre, des concerts symphoniques et une visite aux pyramides de Teotihuacan.

## Régime d'épargne-retraite d l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 juin 1971:

*Fonds à revenu fixe* $11.727.

*Fonds d'actions ordinaires* $24.178.

L'avoir total (valeur marchande) du régime se montait à $10,857,269.57.

Au cours du mois précédent, les transactions ont été les suivantes: achat 5,000 actions de Alberta Gas Trunk A, 500 actions de International Nickel Co, 9,200 actions de Maclean-Hunter, 3,000 actions de Placer Development, et 5,000 actions de Union Gas.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Les organismes dentaires

### Le Dr LaBelle est réélu président de l'ACDQ

Le Conseil d'administration de l'Association des Chirurgiens-Dentistes du Québec à réélu le Dr Hubert LaBelle au poste de président lors de sa réunion du 29 juin. Ont également été élus: Yves Poulin, de Québec, Ier vice-président; Marcel Tenenbaum, de Montréal, 2e vice-président; Pierre-Yves Lamarche, secrétaire; Claude Chicoine, trésorier; Roger Grégoire, conseiller, tous de Montréal; et Pierre-Paul Prud'-Homme, de Shawinigan, conseiller.

Hubert LaBelle

Le Conseil d'administration a de nouveau choisi le Dr Paul Lacoursière comme président d'assemblée.

Des élections au Conseil d'administration avaient eu lieu au mois de juin. Ont été élus par acclamation, les candidats de la Région I; siège 1: H. LaBelle; siège 3: Jacques Matteau; siège 5: William Klein; siège 7: P-Y Lamarche; siège 9: Robert Dupont.

Dans la Région II, siège 1: Roland Vallée, de Québec; Région IV: Jules Talbot; Région VI: Guy Tremblay; Région VIII: Roland L'Arrivée; Région IX: André Besner.

Suite à la démission du Dr J. Matteau, le Conseil a nommé le Dr J. Casaubon pour le remplacer.

### La Société Dentaire de Montréal élit le Dr René Bourcier

Le Dr René Bourcier a été élu président de la Société Dentaire de Montréal le 24 avril lors de l'assemblée générale qui a eu lieu à la Salle Kébec de l'Aéroport International de Montréal. Il succède au Dr Léon Daigle qui devient aviseur.

Ont également été élus: les Drs Gilles Leduc, président désigné; Denis Laflamme, vice-président; Pierre Dupéré, secrétaire; Serge Clément, trésorier; Mario Beaulieu, publiciste; Benoît Parent, secrétaire-adjoint; Roger Dufresne, trésorier-adjoint; Claude Charland et Louis-Marie Breton, conseillers.

René Bourcier

Allen Wainberg

### Dr A. Wainberg devient président du Mount Royal Dental Society et Alpha Oméga

Le Dr Allen Wainberg a été élu président du Mount Royal Dental Society et de la section montréalaise de la fraternité Alpha Oméga. Il succède au Dr Edward Slapcoff.

Le MRDS compte 230 membres dans la région de Montréal et, cette année, il célèbre le 50e anniversaire de sa fondation.

Ont aussi été élus: Dr H. Ptack, vice-président; Dr M. Tenenbaum, secrétaire et Dr F. Muroff, trésorier.

## L'enseignement dentaire

### Nouveau programme de formation à l'Université de Toronto

Le nouveau programme de formation dentaire de la Faculté dentaire de l'Université de Toronto ouvrira deux postes par an aux dentistes qui s'intéressent à la recherche dans les disciplines dentaires cliniques. Les études dureront quatre années dont trois seront consacrées à une formation pour la recherche, qui conduira au titre de PhD, et une qui sera consacrée au travail en clinique et conduira à un diplôme en dentisterie clinique.

Le projet portera surtout sur les sciences fondamentales et cliniques apparentées à la périodontie et l'orthodontie.

Les fonds du Conseil pour la recherche médicale, fourniront des bourses égales à celles dont bénéficient les autres boursiers du CRM. D'autres fonds seront accordés pour la recherche, l'achat de matériel et le salaire d'un nouveau professeur. Deux candidats seront acceptés chaque année, dont un au moins sera choisi parmi ceux nommés par les facultés dentaires canadiennes autres que celle de l'Université de Toronto.

Le projet sera dirigé par le Dr G. S. Beagrie, chef de la division des Sciences cliniques à la faculté de Toronto et directeur adjoint de la Division de l'enseignement dentaire postuniversitaire.

### Saskatchewan ouvre une nouvelle clinique dentaire

Les premiers étudiants dentaires de l'Université de la Saskatchewan, à Saskatoon, ont commencé à travailler dans une nouvelle clinique.

Ces 10 étudiants de la première promotion ont terminé leurs études prédentaires et trois années d'études dentaires. Ils entreprennent maintenant les deux dernières années de dentisterie clinique, dont une d'internat, avant de recevoir leur diplôme.

La nouvelle clinique, temporairement située dans une nouvelle partie de l'édifice des sciences médicales, servira jusqu'à ce qu'une clinique permanente soit construite dans l'hôpital universitaire, qui est en train d'être agrandi. La nouvelle partie de l'édifice des sciences médicales, les 5e et 6e étages, logeront en permanence le reste de la Faculté de chirurgie dentaire, qui a occupé au début de cette année ses nouveaux locaux. Lorsque la construction sera terminée vers la fin de l'année, le bâtiment, qui logera la médecine, la chirurgie dentaire et les soins infirmiers, prendra le nom d'Edifice des Sciences de la Santé.

### Le Dr Cleall reçoit une bourse de $1,500 du FCED

Le Dr J. F. Cleall, chef du département d'orthodontie à la faculté dentaire de l'Université du Manitoba, est le premier gagnant d'une nouvelle bourse d'étude, accordée aux professeurs enseignant déjà dans une faculté dentaire. Voilà la nouvelle que nous a rapporté M. E. Bower, président du Conseil d'administration du Fonds canadien pour l'enseignement dentaire.

Selon le Dr Cleall, cette bourse lui permettra de se rendre aux Universités de Turku en Finlande, et de Nijmegen en Hollande. Il y étudiera des différentes méthodes de préparer étudiants et auxiliaires dentaires à fournir des soins orthodontiques avec compétence dans leurs propres localités.

Cette bourse annuelle, commanditée par la firme Warner-Lambert Canada Ltée, vise à donner à un professeur enseignant déjà dans une faculté dentaire canadienne, la possibilité de rafraîchir et d'étendre ses connaissances dans un domaine quelconque de l'enseignement dentaire ou de la recherche pédagogique.

## L'économie

### La réforme de l'impôt et le dentiste

Selon une modification apportée à l'impôt sur le revenu par le ministre des Finances, M. Edgar Benson, les dentistes devront déclarer comme revenu différé le montant des honoraires à percevoir, et non celui des honoraires effectivement perçus.

D'ordinaire, les dentistes compilent leur revenu à partir des honoraires reçus. Selon les nouvelles dispositions, les dépenses seront déduites du revenu lorsqu'elles sont encourues, et non à la date de l'acquittement.

Cette modification doit entrer en vigueur après le 31 décembre 1971. Mais à cause de la difficulté à évaluer les heures de travail non-facturées, le travail en cours ne doit pas être considéré comme revenu s'il n'a pas été facturé, à moins que le contribuable ne le désire.

Pour assurer une transition convenable, les sommes à percevoir lorsque le nouveau projet de loi entrera en vigueur pourront être converties en revenu au cours de plusieurs années. Le contribuable paiera l'impôt chaque année sur la base du revenu le plus élevé, calculé selon la méthode des honoraires perçus, ou à percevoir, jusqu'à ce que le total du revenu différé s'épuise complètement. Pour les corporations professionnelles, le total du revenu différé doit diminuer de 10 p.c. au moins par année.

#### *Bourses d'études et de recherche*

Les bourses d'études et de recherche, en argent ou en nature seront imposables avec une exemption de $500. Les octrois pour la recherche seront eux aussi imposables, avec certaines déductions pour l'équipement, les frais de scolarité, les déplacements et les coûts de laboratoire.

A titre d'exemple, un étudiant récipiendaire d'une bourse d'études bénéficiera d'exemptions et de déductions totalisant au moins $2,700. Voici comment: $500 d'exemption sur sa bourse d'études, $1,500 à titre d'exemption de base, $600 à peu près de déduction pour ses frais de scolarité, et $100 de déduction normale.

Les Canadiens qui quittent leur pays de façon temporaire, pour aller étudier ou enseigner ailleurs, continueront d'être imposés au Canada.

#### *Régimes de retraite*

On encouragera les Canadiens à investir plus d'argent dans les régimes de retraite grâce à des cotisations beaucoup plus élevées qui sont déductibles de l'impôt lorsqu'elles sont versées aux régimes enregistrés d'épargne-retraite.

Le projet de loi élève le montant des cotisations permises à un régime enregistré de pension de $1,500 à $2,500. Ceci signifie que la contribution mixte employeur-employé peut atteindre $5,000, comparée à $3,000 auparavant et peut être déduite du revenu.

Dans le cas des régimes de retraite enregistrés, les contributions maximums atteindront $4,000 (ou 20 p.c. du revenu) au lieu de $2,500.

#### *Frais professionnels*

Les propositions de réforme sur l'impôt permettraient des déductions pour les frais de congrès et de réception, mais les cotisations versées à des clubs sociaux ou récréatifs ne seraient, elles, plus permises.

Le Livre blanc refusait toute déduction au chapitre de la participation à des divertissements sociaux ou à des congrès. Il n'aurait pas interdit les dépenses, mais n'aurait pas permis leur déduction de l'impôt.

Les nouvelles propositions, elles, limiteront les déductions de frais occasionnés par un congrès à deux congrès par an, et ceci avec certaines restrictions géographiques.

#### *Frais médicaux*

Tel qu'annoncé dans le Livre blanc, le projet de loi propose trois ajustements généraux au chapitre des frais médicaux.

*(Suite à la page 297)*

**POINTS SAILLANTS DE LA RÉFORME DE L'IMPOT SUR LE REVENU**

| | |
|---|---|
| *Honoraires professionnels* | Imposables sur la base du revenu à percevoir plutôt que du revenu perçu. |
| *Bourses d'études et de recherche* | Imposables avec exonération annuelle de $500. |
| *Octrois pour la recherche* | Imposables avec déduction pour les frais occasionnés par cette recherche. |
| *Régime de pension, régime enregistré d'épargne-retraite et régime de participation différée aux bénéfices* | Les contributions maximums passent à $2,500 pour les régimes de pension et à $4,000 pour les régimes d'épargne-retraite. |
| *Cotisations versées à des clubs, frais de congrès et de représentation* | Les cotisations versées à des clubs ne sont plus admises. Les frais encourus pour les congrès et les frais de représentation sont encore déductibles à condition d'être raisonnables. Certaines restrictions quant aux endroits où se déroulent les congrès. |
| *Frais médicaux* | Extension de la liste des frais médicaux déductibles de façon à inclure les institutions spécialisées dans la réhabilitation des personnes handicapées ainsi que l'équipement et les appareils requis sur ordonnance. Les primes versées à des régimes d'assurance privés sont classées comme frais médicaux déductibles. Les frais médicaux remboursés à un contribuable par un régime d'assurance-maladie ne sont pas déductibles. Les contributions versées par un employeur à tout régime gouvernemental constituent un bénéfice imposable. |
| *Assurance-chômage* | Contributions déductibles, bénéfices imposables. |
| *Dons de charité* | Limite fixée à 20 p.c. du revenu net. Sont aussi admissibles les dons aux associations nationales d'athlétisme amateur. |

(Suite de la page 296)

Les contributions versées par un employeur au nom de ses employés à un régime d'assurance-maladie universel seront considérées comme bénéfices, et donc imposables pour l'employé (ceci n'incluera pas les sommes versées aux employés à la retraite).

Les frais médicaux qui ont été remboursés à un individu par un régime d'assurance, ne peuvent être considérés comme tels aux fins d'impôt.

Les primes versées par un individu à un régime privé d'assurance-maladie ou d'assurance-hospitalisation peuvent être considérées comme frais médicaux déductibles de l'impôt.

De plus, le projet de loi étend la série des frais médicaux déductibles aux sommes versées à toute école ou toute autre institution spécialisées dans la réhabilitation mentale ou physique des personnes handicapées ou infirmes.

### Propositions de l'ACDQ: prévention, pas d'extractions

Les négociateurs de l'Association des Chirurgiens-Dentistes du Québec ont présenté au gouvernement québécois un avant-projet décrivant la couverture des soins dentaires à l'intention des enfants jusqu'à l'âge de sept ans.

Les propositions de l'ACDQ sont axées principalement sur les soins préventifs et restaurateurs, et ne couvrent pas l'extraction des dents primaires et permanentes.

L'avant-projet traitant des soins dentaires en cabinet privé à été remis le 28 juin aux représentants du ministère des Affaires sociales qui doivent maintenant les étudier.

### La chirurgie buccale a coûté $900,000 de plus que prévu au Québec

Le coût des services de chirurgie buccale aura coûté près du double du montant prévu par le gouvernement.

La Régie de l'assurance-maladie du Québec a révélé qu'au cours des quatre premiers mois de fonctionnement du régime, les services de chirurgie buccale se sont élevés à $1.9 million comparativement à $1.0 million prévu en octobre 1970. Ces quatre mois couvrent la période avant la signature de l'entente entre le Comité de négociation de l'Association des Chirurgiens-Dentistes du Québec et le gouvernement et avant l'imposition des critères qui ont restreint les services de chirurgie buccale. Les honoraires étaient cependant moins élevés.

Le ministre des Affaires sociales, M. Claude Castonguay, a déposé le 29 juin à l'Assemblée nationale le rapport de la Régie concernant l'estimation du coût du régime pour l'exercice financier 1971-72.

Le coût total du régime d'assurance-maladie dépasse de $10 millions les estimations initiales.

La Régie croit cependant que les revenus provenant des contributions prélevées des bénéficiaires et des employeurs, du gouvernement fédéral et d'autres sources, seront suffisants. Elle recommande donc au gouvernement de maintenir à leur niveau actuel, les taux des contributions prélevées des employeurs et des bénéficiaires du régime.

### Les infirmières du Québec s'opposent à la formation d'assistants-médicaux

Dans un mémoire envoyé au ministre des Affaires sociales, M. Claude Castonguay, l'Association des infirmières de la province de Québec s'oppose fermement à ce qu'une nouvelle catégorie de travailleurs de la santé (assistant-médical) soit créée. On devrait au contraire, a dit la secrétaire-registraire de l'AIPQ, Mlle Dumouchel, étudier rapidement l'élargissement du rôle de l'infirmière universitaire.

Ces dernières sont trop souvent confinées à des tâches administratives et d'enseignement alors qu'elles pourraient être précieuses dans des tâches hautement spécialisées à l'intérieur d'équipe multidisciplinaire de santé, a-t-elle dit.

L'enseignement infirmier doit demeurer la responsabilité des cegeps, des facultés des sciences de la santé des universités, du ministère de l'éducation et de la corporation professionnelle des infirmières, dit-on dans le même mémoire.

D'autre part, l'AIPQ a remarqué que les infirmières qui complètent leurs études dans les cegeps de leur région ont tendance à demeurer sur place, ce qui est un avantage considérable pour les régions éloignées. Autrefois, les infirmières, après avoir terminé des études à Montréal ou dans d'autres grandes villes, ne retournaient plus dans leurs régions où il y a pourtant pénurie de personnel médical.

### Nouveaux règlements régissant l'assurance-chômage

La nouvelle législation régissant l'assurance-chômage est entrée en vigueur le 27 juin 1971. La page réservée au Directeur général dans le numéro du mois de juin du Journal (p 208) avait été composée avant la promulgation officielle desdits changements.

En conséquence, les paragraphes 3(b) et 4(a) et (b) qui apparaissent en p 208 ne sont plus valides puisque les nouveaux amendements abolissent le plafond de $7,800 de salaire annuel, montant auquel un employé cessait d'être assurable.

En cas de doute sur l'assurabilité des employés d'un dentiste, veuillez contacter le bureau le plus proche de la Commission d'assurance-chômage.

## La fluoration

### Echecs au Nouveau-Brunswick

Deux villes ont refusé la fluoration lors d'un référendum qui a eu lieu le 14 juin, jour des élections municipales au Nouveau-Brunswick.

A Saint-Jean la fluoration fut battue par 15,815 voix contre 6,972; à Hartland par 324 voix contre 87.

### Le Dakota du Sud maintient la fluoration obligatoire

Lors d'un référendum en novembre dernier, le Dakota du Sud a décidé de conserver la loi sur la fluoration passée en 1969. Le Dakota du Sud est l'un des sept états dont la loi rend la fluoration obligatoire.

Cette loi exige l'installation d'appareils de fluoration dans toutes les municipalités de plus de 1,000 habitants avec des dates limites fixées à 1970 et 1972. La mesure touche 66 villes totalisant 214,000 habitants.

### Suède: l'interdiction de la fluoration était une fausse rumeur

La Suède n'a pas interdit la fluoration, contrairement au bruit qui en a couru.

Le Dr J. A. Ahlberg, directeur général de la Fédération dentaire suédoise a déclaré que le Conseil national suédois de la santé et des affaires sociales n'a pas décidé d'interdire la fluoration. C'est un Suédois, adversaire de la fluoration, qui a fait allusion à une interdiction, et le Conseil l'a blâmé pour ses déclarations.

Le Dr Ahlberg a expliqué que selon la loi suédoise, les municipalités demandent au Conseil national la permission d'installer la fluoration. On s'attend à ce que plusieurs localités se joignent au projet pilote de Norrkoping, qui a débuté en 1952.

La fluoration était revenue à l'ordre du jour en Suède pour décider si le Conseil national devait modifier la loi afin de respecter la directive de l'Organisation mondiale de la Santé demandant aux pays membres de promouvoir effectivement la fluoration. La Suède était l'une des 37 nations qui ont appuyé la résolution de l'OMS en faveur de la fluoration en 1969.

## La recherche

### Les ciments pourraient remplacer les bagues d'orthodontie

Des chercheurs de l'Université de l'Indiana ont entrepris des essais cliniques pour déterminer dans quelle mesure les ciments au carboxylate améliorés peuvent fixer les "brackets" d'orthodontie aux dents dans des conditions d'usage normales. Les essais en laboratoire ont déjà montré que l'adhésion aux dents d'un ciment au carboxylate typique est tellement supérieure à celle d'un ciment classique au phosphate de zinc, qu'elle pourrait empêcher les défauts d'échantéité autour des obturations et rendre les bagues d'orthodontie inutiles.

Le ciment au carboxylate, mélange de poudre d'oxyde de zinc modifié et d'acide polyacrylique dissous dans l'eau, résiste moins à la compression que celui au phosphate de zinc, ce qui, pour effectuer une liaison, est moins important que la résistance à la traction. La résistance à la traction des deux types de ciment est comparable.

Le premier grand avantage du ciment de plastique est sa plus forte adhésion à l'émail et à la dentine. Sa liaison à l'émail est particulièrement bonne.

Un deuxième avantage est que le polycarboxylate irrite très peu la pulpe dentaire tandis que le phosphate de zinc exige l'emploi d'un fond de cavité là où il ne reste que peu de dentine.

Enfin, la meilleure adhésion du ciment de plastique à la dent empêcherait les liquides buccaux de s'infiltrer autour des obturations et de les miner. Sa moins bonne adhésion à l'or pourrait être compensée en donnant aux incrustations en or une forme qui bloquerait le ciment mécaniquement. De plus, l'infiltration entre l'or et le ciment causerait moins de dommages qu'une infiltration dans la dent même.

### Certaines polysaccharides peuvent provoquer des hémorragies post-opératoires

L'emploi automatique de polysaccharides de poids moléculaire élevé (le dextran, par exemple) pour reconstituer le volume plasmatique, n'est pas recommandé chez les patients qui ont subi des opérations de chirurgie buccale avec saignement minime. Ces agents devraient être réservés aux patients en état de choc grave provoqué par les hémorragies, les traumatismes, les interventions chirurgicales ou les brûlures, et qui présentent une défaillance vasomotrice presque complète.

Dans le numéro de janvier 1971 du *Journal of Oral Surgery*, le Dr L. I. Gaum de Toronto décrit le cas d'une femme de 22 ans qui subit des extractions et des alvéolectomies dans le service externe d'un hôpital. Elle perdit environ 100 à 150ml de sang. Au cours de l'opération, on administra par voie intraveineuse 500ml de soluté physiologique et 500ml d'un polysaccharide de poids moléculaire élevé (dextran), dont le poids moléculaire était de 100,000.

Une hémorragie grave débuta environ 15 minutes après la fin de l'intervention et dura environ 24 heures malgré l'emploi de pansements sous pression, de sutures et de diverses méthodes de remplacement de la masse sanguine circulante.

Le dentiste torontois attribue cette grave hémorragie et les résultats anormaux d'épreuves sanguines post-opératoires à la solution de dextran administrée au cours de l'intervention.

Il en conclut que l'emploi d'un agent ayant une action antagoniste à la thrombine chez un patient ayant subi une intervention chirurgicale buccale mineure avec perte de sang minime équivaut manifestement à susciter une grave hémorragie post-opératoire, surtout lorsqu'il existe des plaies alvéolaires ouvertes à la suite de l'intervention.

## LES PRECAUTIONS A PRENDRE CONTRE LE MERCURE

Le mercure qui entre dans la préparation des restaurations à l'amalgame ne constitue pas un danger sérieux pour les patients, selon un rapport paru dans le numéro de juin 1971 du *Journal de l'Association Dentaire Américaine*. Mais les dentistes doivent cependant prendre conscience du danger que comporteront l'exposition prolongée du personnel du cabinet dentaire et la contamination du milieu par les déchets d'amalgame non utilisé.

On peut empêcher la pénétration des ions de mercure dans les tissus durs de la dent en recouvrant toujours les surfaces des cavités d'un vernis ou d'un fond de cavité.

La vapeur de mercure est dangereuse si on la respire en concentrations élevées pendant une période prolongée. Deux études récentes ont découvert dans quelques cabinets dentaires des concentrations de vapeur de mercure excédant la limite acceptée actuellement. Plusieurs facteurs contribuent à élever la concentration de vapeur de mercure: la négligence, puisque l'on a assumé pendant des années que le danger était minime; la décoration des cabinets pour y installer des tapis et l'usage, sans les précautions nécessaires, de vibrateurs mécaniques pour amalgame, de fouloirs ultrasoniques et d'instruments tranchants rotatifs à grandes vitesses.

Pour éviter des problèmes avec le mercure, le dentiste devrait:

(a) conserver le mercure dans des récipients incassables à fermeture hermétique;

(b) limiter les pertes accidentelles à un plateau ou autre surface de travail facile à nettoyer;

(c) prévoir pour le cabinet dentaire un revêtement de sol sans fissures remontant de deux pouces sur la base des murs;

(d) récupérer tous les déchets d'amalgame (en installant au besoin des filtres retenant les déchets solides sur les crachoirs et les dispositifs d'aspiration) et conserver les déchets dans un récipient hermétique;

(e) travailler dans des espaces bien aérés;

(f) ne pas employer sans bonne raison les solutions contenant du mercure;

(g) eviter de chauffer le mercure ou l'amalgame;

(h) utiliser un jet d'eau pulvérisé et un dispositif d'aspiration durant le meulage de l'amalgame;

(i) condenser l'amalgame selon les méthodes classiques, sans employer de fouloir ultrasonique.

Il faut bien noter qu'un aspirateur ordinaire ne peut pas relever le mercure d'une surface contaminée. La meilleure façon de ramasser le mercure renversé est de le faire immédiatement avec le dispositif d'aspiration, avant que les gouttelettes ne commencent à se disperser. Pour ce faire, on peut modifier temporairement l'appareil à succion, en y adaptant un tube conduisant à un récipient contenant de l'eau et servant de bassin de récupération. On peut utiliser un tube court muni d'une canule semblable à un compte-goutte et qui mènerait au bassin. On aspire alors les gouttelettes par la petite ouverture de la canule. La majeure partie du mercure peut ainsi être récupérée. Les gouttelettes que l'on ne pourrait atteindre qu' avec grandes difficultés devraient être saupoudrées de soufre ou couvertes d'un mélange d'eau, de soufre et d'oxyde de calcium. La couche de sulfure empêchera la vaporisation tant que les gouttelettes ne seront pas secouées. Les tapis qui ont été fortement contaminés par de nombreuses pertes de mercure devraient être remplacés par un revêtement de sol lisse.

Certaines capsules employées dans les vibrateurs mécaniques permettent le dégagement de fines gouttelettes de mercure pendant le mélange. Les nouvelles capsules à filet et les capsules scellées proportionnées conviennent parfaitement pour contenir le mercure au cours du mélange mécanique.

# Forensic odontology in Canada

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*Forensic odontology is a relatively new and unknown subject in Canada. Several recent mass disasters have drawn attention to the potential significance of dental identification in such tragedies. The following article shows how lack of communication has so far prevented dentistry from playing a significant role in identification procedures. The authors suggest methods to overcome this impediment.*

*La stomatologie médico-légale est une discipline assez neuve et peu connue au Canada. Récemment, plusieurs désastres importants ont attiré l'attention sur la valeur que peut avoir l'identification dentaire dans de tels cas. L'article révèle comment le manque de communication a, jusqu'à présent, empêché l'art dentaire de jouer un rôle important et les auteurs suggèrent certains moyens de combler cette lacune.*

The terms, forensic dentistry and forensic odontology, have been used interchangeably by some authors and organizations. Others, however, have termed the broad relationship between dentistry and the law, forensic dentistry, and have divided the field into two components, dental jurisprudence and forensic odontology. Keiser-Nielsen[1] defines forensic odontology as the proper handling and examination of dental evidence in the interests of justice, so that the dental findings may be properly presented and evaluated.

The scope of forensic odontology includes the use of dental findings in identification procedures. Because of their high degree of mineralization, teeth are the most durable of human tissues and may be preserved when much of the body has been destroyed by fire, chemicals or decomposition. Consequently, a useful method of identification when other means have failed lies in the comparison of dentitions of human remains with ante-mortem dental records. In some cases examinations in oral histopathology and dental material laboratories may be necessary. Bitemarks can likewise be useful for the possible identification of an assailant or other criminal. Forensic odontology also includes the study of injuries to teeth from a forensic viewpoint.

The Scandinavians are considered the leaders in forensic odontology but interest is growing in North America. In 1962 the Division of Dental and Oral Pathology of the Armed Forces Institute of Pathology in Washington, DC, presented its first one week course in forensic dentistry. This course is now held annually and is open to members of the dental, medical, legal and law enforcement professions. In addition, the American Academy of Oral Pathology has a committee on forensic dentistry and devoted a large part of the scientific program at its 1969 annual meeting to forensic odontology.

The American Academy of Oral Pathology has encouraged members to introduce the subject of forensic odontology into their teaching programs in oral pathology. When this was attempted at the University of Western Ontario, it was soon found that there was no accumulated information on the state of development of forensic odontology in Canada. The present investigation was designed to obtain this information in the hope that it would be useful in our teaching program and to others presenting similar programs.

Since this work began in September 1969, two events have served to focus attention in Canada on forensic odontology. In February 1970, two Toronto dentists, J. D. Purves and K. F. Pownall,[2] proposed

the formation of a national committee to further interest and participation in this area of dentistry. Their efforts culminated in the formation of the Canadian Society of Forensic Odontology which had its inaugural meeting in Winnipeg on July 2, 1970. Doctor Purves was elected president of this new group and K. B. Petersen, secretary-treasurer. The second event was the tragic crash of a DC-8 airliner just outside Toronto on July 5, 1970. One hundred and nine persons were killed. Dentists, drawn from the Canadian Society of Forensic Odontology, provided a valuable service by using dental evidence to aid in the identification of many of the victims.

## Method

A standard questionnaire on the use of dental evidence in police work was sent to the chiefs of police of 23 municipal police forces across Canada (Calgary, Charlottetown, Edmonton, Halifax, Hamilton, Kitchener, London, Montreal, Ottawa, Quebec City, Regina, St. Catharines, Saint John, St. John's, Saskatoon, Sault Ste. Marie, Sudbury, Thunder Bay, Toronto, Vancouver, Victoria, Windsor and Winnipeg). The police forces selected were chosen primarily on the basis of the population served. A number of smaller forces were also included in order to assure a good geographical distribution.

Letters containing questions on forensic odontology were also sent to the Royal Canadian Mounted Police; the Ontario Provincial Police; la Sûreté du Québec; the Centre of Forensic Sciences, Toronto; the Ontario Police College, Aylmer; the Canadian Penitentiary Service; the Canadian Forces Dental Services; the Department of Transport, Government of Canada; Air Canada; Canadian Pacific Airlines; all Canadian dental schools; the Emergency Measures Organization; and the Canadian Society of Forensic Science.

## Results

### *Municipal police forces*

In Canada the identification of human remains is the responsibility of the provincial attorney general's department, in many cases through a coroner system. The coroner is assisted by the police, the pathologist and on occasion by other consultants, including dentists. A complete dental examination by a dentist forms a routine part of the post-mortem examination in cases involving the police in two of the cities polled, it is done occasionally in 14 cities and never in two cities. If a dentist is required to assist in a post-mortem examination, he is most often selected by the pathologist, almost as often by the police and occasionally by the coroner.

Seventeen police forces had used dental records to identify human remains. Answers ranged from "yes, many times" to "no, not in 30 years." Nine of the 23 forces had used bitemarks or other dental findings in attempts to identify the suspect in cases of assault, homicide or other criminal offences. Personnel from 14 of the forces polled had attended courses in which the use of dental evidence in identification procedures was discussed. Ten forces mentioned the RCMP's Senior Investigator's Course at Ottawa. Other courses mentioned were those given by the Federal Bureau of Investigation, Washington; the Civil Defence College, Arnprior, Ont; the Canadian Fire Investigation School, Fredericton; the Institute of Applied Science, Chicago (a correspondence course); by coroners and in connection with the State of Washington Identification Conferences.

All police forces recognized the important role that dental evidence could play in police work. Some felt, however, that its potential was only partially used because their personnel were either not fully aware of its value or failed to consider its possible application in a particular case.

Although no police force had a continuing association with a dental consultant, 15 were interested in having a local one. Some felt that the demand for his services would be insufficient and others were concerned about the possible cost. Eighteen forces would like some of their personnel to receive instruction in the use of dental evidence. Some forces from the smaller centres felt that the number of cases in which they might be involved would not warrant the expense.

### *Royal Canadian Mounted Police*

Technical identification of human remains, or occasionally of living persons, is the responsibility of investigative officers who may request assistance from various sources including the RCMP's Laboratories and Identification Branch and, if indicated, from dentists. The Director of Laboratories and Identification acknowledged the use of dental evidence as a valuable, if seldom used, tool. Sometimes it was the only means available for establishing identity.

When a photograph of a missing person is available, the RCMP publishes a "missing person card" which may include details of any unusual dental characteristics. Missing person reports received from within Canada, from foreign countries or from Interpol seldom contain dental charts. The RCMP has ordered several thousand of the new Interpol "Disaster Victim Identification Form" which is available in French and English and which can be used to describe missing or deceased persons. This form contains a dental chart or "odontogram" with keys to the symbols to be used. There is also space to note peculiarities of the teeth and to attach dental radiographs.

The RCMP maintains crime detection laboratories in Ottawa, Vancouver, Edmonton, Regina and Sackville in support of its own investigative activities and those of other Canadian police forces, primarily outside Ontario and Quebec. These crime detection laboratories do not provide pathological services except in the examination of body tissue for toxic substances. Because of the laboratories' rather limited role in the identification of human remains and victims of mass disasters, the commanding officer of the laboratories felt that there was little need for a dental consultant or for formal training of laboratory personnel in the use of dental evidence in police work although they should be aware of its potential value.

Mention is made in the RCMP's Senior Investigator's Course of the use of dental evidence in identifica-

tion procedures but no instruction is provided in the use of bitemarks and other dental evidence in the identification of suspects.

The Department of Veterans' Affairs provides complete dental treatment for RCMP personnel and maintains current dental records which could be used for identification purposes.

*Ontario Provincial Police*

The Ontario Provincial Police is the investigative body of the Department of Justice and the Office of the Supervising Coroner of Ontario. Highly trained identification officers are located at the headquarters of the force in Toronto and at each of the 17 district headquarters. These men are familiar with the various facets of identifying human remains and are qualified in the collection and preservation of evidence, including human tissue. They often work closely with scientists from the Centre of Forensic Sciences in Toronto.

The director of the Criminal Investigation Branch stated that in many cases identification of an unknown body is accomplished by visual means or by the use of fingerprints. However, a complete dental examination is performed when these means are not appropriate or unsuccessful. On one occasion, it was possible to show that the bitemarks on the breast of a murder victim matched the dental casts made from impressions taken during the autopsy of her suspected assailant who had committed suicide. The dental evidence in this case was not used as conclusive evidence in identifying the victim's assailant but it was corroborative.

The Ontario Provincial Police does not retain a dental consultant on a continuing basis. When necessary, the services of a local dentist are obtained with the concurrence of the pathologist and coroner. It was felt that the best arrangement might be to have a dental consultant retained on a fee-for-service basis by the Centre of Forensic Sciences.

There is apparently no instruction in forensic odontology given at the Ontario Provincial Police College, Toronto. However, some OPP personnel have attended courses given by the Office of the Chief Medical Examiner, Maryland, in which this aspect of forensic science was discussed. The director of the Criminal Investigation Branch stated that the OPP would like its district identification officers to receive instruction in the use of dental evidence.

*La Sûreté du Québec*

La Sûreté du Québec is the provincial police force of Quebec and is responsible to the Minister of Justice of that province. It has used dental findings to aid in identification procedures when other means have failed. Apparently, a dental examination is never performed by a dentist at the time of autopsy because this matter is left to the pathologist who is considered perfectly capable of completing a dental record of the deceased. No dental consultant is associated with the force and such an appointment is not considered necessary because when dental advice is required a dental school is approached.

When a corpse can be provisionally identified and his dentist found, the dentist may be required to provide the investigators with the appropriate dental records. Situations where the use of bitemarks might be used in identification procedures in cases of assault, for example, were considered rare. It was felt that this means of identification would be rather laborious.

L'Institut de Médecine Légale et Police Scientifique is located at the headquarters of the Sûreté and provides services in forensic science to law enforcement agencies in Quebec. The use of dental evidence in police work is mentioned briefly during some courses given at L'Institut de Police du Québec at Nicolet. Interest was expressed in the possible presentation of a short course on forensic odontology to members of the Sûreté.

*Centre of Forensic Sciences, Toronto*

The Centre of Forensic Sciences is a branch of the Public Safety Division of the Department of Justice of the Province of Ontario. It is the only provincial forensic laboratory in Ontario and serves all law enforcement agencies in the province, including the Ontario Provincial Police. The objectives of the Centre are: (a) to apply the principles of forensic science to assist in law enforcement and the administration of justice in Ontario; (b) to conduct, direct and promote education programs in forensic science for law enforcement and administration of justice officers, officers of the courts, and faculties of medicine, science and law in close cooperation with the administration of the universities; and (c) to conduct and promote research programs in forensic sciences.

The services provided by the centre include pathology, toxicology, biology, chemistry, firearms examination and document examination. These services are provided free of charge to all official investigative bodies and to defence counsel in criminal cases in Ontario. Certain services, on a fee-for-service basis, are available to counsel in civil cases.

The director of the centre attaches considerable importance to the use of dental findings in the identification of human remains, particularly in skeletons or badly fragmented bodies. He considers fingerprints as the preferred means of identification, partly because they are more readily handled by the police than are dental findings which require the assistance of a dentist. He rated dental findings immediately after fingerprints in importance.

The director is also aware of the possibility of using bitemarks to identify the suspect in cases of assault or in other criminal offences but he feels that caution is necessary in this area, mentioning the recent highly controversial case in Scotland in which the suspect was convicted on the basis of the matching of his dentition to marks on the victim's breast.[3]

The centre does not have a dental consultant on a continuing basis but the director feels that there is a need for such an individual on a fee-for-service basis. At present cases are referred to Doctor Purves of Toronto.

In regard to training, the director believes that the centre's own pathologists and other pathologists doing coroners' autopsies should receive instruction in the use of dental findings in identification procedures.

*Ontario Police College*

The Ontario Police College at Aylmer is operated as a branch of the Department of Justice under the direction of the Ontario Police Commission.

Training is provided for the Ontario Provincial Police and for all the municipal police forces in Ontario. The use of dental evidence in police work is discussed during the course for identification officers and in criminal investigation classes. This instruction is not given by a dentist.

The director does not feel that direct instruction by a dentist is necessary but believes that the students should be aware of the potential role of dental evidence in identification procedures and know how to obtain the necessary professional assistance. He would like his instructional staff to have frequent liaison with a dentist, perhaps through the Centre of Forensic Sciences, so that they would be informed of developments and procedures in forensic odontology.

*Canadian Penitentiary Service*

The director of medical services of the Canadian Penitentiary Service kindly supplied letters from the dentists employed in two of Canada's major penal institutions. At one of these penitentiaries each prisoner receives on arrival a complete dental examination, at which time details of the state of the mouth are recorded. The dentist concerned felt that his records could readily be used in identification procedures and had, on one occasion, used them to prove that a skull of a completely burned body could not belong to a former prisoner of that penitentiary. He routinely marked complete dentures with the prisoner's number, but the inmates sometimes removed this identifying feature.

At the second penitentiary the dentist used to examine and record the findings of all newcomers until approximately two years ago. This procedure has been discontinued because the patients had somewhat belligerently demanded that complete dental treatment be provided immediately, a demand which the dentist understandably could not fulfil. Moreover, many of the new inmates of his institution were transferred elsewhere within a month. He presumed that these individuals received complete dental examinations at their designated institutions. This dentist stated that he kept records of the dental treatment which he provided so they could be used in identification procedures.

*Canadian Forces Dental Services*

A complete dental examination, including a panoramic radiograph, is performed on all recruits enlisting in the Canadian Forces. During this examination all details which might be useful in identifying the individual at a future date are noted. The examination findings and the panoramic film are part of the permanent dental record of the serviceman which accompanies him throughout his service career. Subsequent dental treatment is recorded on the permanent dental record, keeping it up to date. The social insurance number, which has replaced previous service numbers, is not recorded on prosthetic appliances fabricated by the Canadian Forces Dental Services.

The Canadian Forces do not maintain a permanent identification team. However, the local base dental officer is expected to assist in identification procedures when necessary. The Canadian Forces Dental Services have no responsibility to other federal agencies in matters relating to dental identification. Nevertheless, assistance has been provided at times to the RCMP on request.

No formal instruction in forensic dentistry is given to dental officers at the Canadian Forces Dental Services School and as yet no dental officers have taken the course on forensic dentistry at the Armed Forces Institute of Pathology, Washington.

*Federal Department of Transport*

The responsibility for investigating aviation crashes in Canada lies with the Accident Investigation Division of the Civil Aviation Branch of the Department of Transport. Moreover, Canada has the right, under the provisions of Annex 13 to the International Civil Aviation Organization Convention, to participate in the investigation of accidents which involve aircraft registered in Canada but which occur in other signatory states.

In the investigation of aviation accidents the Department of National Health and Welfare provides medical advice to the Department of Transport. A medical officer from the former department participates in the human factors investigation of all fatal accidents. One aim of this investigation is to aid in the identification of the victims. However, the main responsibility rests with the Department of Justice in the province in which the accident occurs.

The chief of the Accident Investigation Division, R. L. Bolduc, emphasized that identification of the flight crew is particularly important in order to establish a relationship between the particular crew member and post-mortem biochemical and pathological testing. But the Department of Transport does not require airlines to maintain identification records of their air crew. The following statement in the Toronto *Daily Star* of July 7, 1970, a few days after the DC-8 crash near Toronto, is pertinent:

> "Bolduc also revealed that Canadian air crews had opposed providing details of their dental work and other means of identification in the event of crashes.
>
> He said the question of dental identification was broached by a forensic medicine organization and that he had got in touch with Air Canada and other airlines.
>
> 'I believe the flight crews were asked about their views and they expressed an unwillingness. They felt it was invading privacy,' he said."

The Accident Investigation Division does not have standing identification teams, nor does it have a dental consultant on a continuing basis. While none of the division's personnel has received any training in the use of dental evidence in the identification of the dead, Bolduc[4] felt that their medical adviser from the Department of National Health and Welfare was well aware of the value of forensic odontology in identification procedures. Moreover, the Accident Investigation Division is now using the Interpol Disaster Victim Identification Form which pays considerable attention to the dental findings.

*Airlines*

Replies from two major Canadian airlines indicated that they did not keep dental records of their air crew. Air Canada specifically stated that it does not have the name of each member's dentist on file. Neither airline has a dental consultant. The chief of medical services for Canadian Pacific Airlines said that dental findings would undoubtedly help in identifying victims of aviation disasters. However, he stated that in an air crash involving potentially hundreds of victims, a dental profile of the flight crew would assist in identifying relatively few individuals.

*Canadian dental schools*

Until recently, forensic odontology was taught at only one Canadian dental school—the University of Manitoba, which has had an imaginative program for the past 10 years. In tune with the awakening interest in the field, some schools have initiated short programs in forensic odontology within their undergraduate curriculum. Others as yet offer no such instruction, although brief reference may be made to forensic odontology in various courses.

At the University of Manitoba, forensic odontology is introduced whenever it is relevant to the topic being discussed in the second year course in oral pathology. In the fourth year, the Department of Oral Pathology presents students with a forensic problem and they participate in a courtroom exercise which is often presided over by a judge. Law students act as advocates. The organizing department feels that this realistic and rather gruelling experience with a practical case is superior to any formal instruction.

Lectures are given in forensic odontology at McGill University and fourth year students prepare a paper on some aspect of the subject under the direction of the Department of Oral Pathology.

The University of Toronto is initiating two lectures in forensic odontology in the 1970-71 academic year.

Forensic odontology is introduced in the course in oral pathology in the second year at the University of Western Ontario. In 1970, third and fourth year students attended a three hour interdisciplinary conference on the subject in which dentists, a coroner and a law professor participated. This conference will be repeated in future years.

*Emergency Measures Organization*

The Emergency Measures Organization is represented at federal, provincial and local levels. Its responsibilities do not include identification of human remains.

*Canadian Society of Forensic Science*

There have been no papers on forensic odontology presented at scientific sessions of the society or in its journal.

**Discussion**

The various police authorities contacted were aware of the potential use of dental evidence in police work and all seemed interested and appreciative of the help that the dental profession has provided in the past. Nevertheless, the survey probably served to remind some police forces of the potential value of dental evidence.

Until recently, there has been no organized means of obtaining aid from the dental profession. The services of local dentists were obtained when required by the pathologist, coroner or police. The organization of the Canadian Society for Forensic Odontology, consisting of dentists who have some training, experience or interest in the field, should make the obtaining of dental assistance more readily available. Moreover, the establishment of certain specialized services, such as the determination of age from individual teeth by histological means, is contemplated.

Canadian police officers appear to receive very little instruction in forensic odontology. We consider it important that the police be aware of the potential use of dental evidence in their work and know how to obtain the necessary professional assistance. The formation of the Canadian Society for Forensic Odontology should help to ensure this; any instruction should be directed primarily at identification officers and criminal investigators.

Instruction in the value of dental evidence should be provided in courses for coroners and to pathologists performing coroners' autopsies. The claim by one respondent that medical pathologists are perfectly capable of recording dental findings at autopsy is simply not true. They have virtually no knowledge of dentistry. Moreover, coroners, pathologists and the police should realize that the dental findings must be recorded accurately by a dentist to be of value. No unidentified remains should be buried until a complete dental record has been made.

A short period of undergraduate instruction in forensic odontology should be provided by all dental schools. Dental officers should be instructed in forensic odontology at the Canadian Forces Dental Services School.

The Canadian Forces have a most satisfactory method of keeping dental records suitable for identification procedures. However, the serviceman's social insurance number should be recorded on all removable prosthetic appliances fabricated. This policy should be extended to all such appliances fabricated in Canada. The technique is simple, inexpensive, and would be very useful in identification procedures.

A dental record suitable for identification procedures should be made of each prisoner when he is first confined to a penitentiary. This record should be kept up to date as further dental treatment is performed. Removable prosthetic appliances should be marked with an identifying number.

The Department of Transport's policy of not requiring airlines to maintain identification records of their air crew should be changed, despite possible union opposition. Dental records, kept up to date, and the name of the individual's dentist should be included. The argument that, in an air crash involving potentially hundreds of victims, having the dental records of the flight crew would assist in identifying relatively few individuals is untenable. It is important that air

crew be identified quickly so that post-mortem biochemical and pathological tests may be performed as soon as possible after the accident.

None of the authorities contacted had a dental consultant on a continuing basis and some felt that the demand for his service would not be great enough to warrant having one. However, the Ontario Police College, the Ontario Provincial Police and the Centre of Forensic Sciences in Toronto all felt that the best arrangement might be to have access to a dental consultant through the Centre of Forensic Sciences. In two of these cases a fee-for-service basis was suggested.

From time to time, details of the dental condition of a missing person or unidentified corpse are published in Canadian and other dental journals in the hope that the dentist who treated the individual in question will recognize him. This is a rather remote possibility. Butler and Harvey,[5] who studied this matter in detail, concluded that "there seems to be very little evidence of help resulting from these publications." They made several suggestions for the improvement of police presentation of dental details for identification purposes. The 1969 Interpol "Disaster Victim Identification Form" makes provision for recording dental findings. Unfortunately, the symbols to be used in the "odontogram" are not familiar to Canadian dentists and, inexplicably, there are no symbols to indicate the nature of any dental restorations. A supplementary chart should be included when the Interpol form is used in Canada, as is done in Scotland,[5] and a key to the symbols used should be attached.

Finally, the success of using dental evidence in identification procedures depends upon the investigator's access to adequate dental records. The responsibility for the establishment and maintenance of such records lies with the dentist. Dentists should, therefore, keep accurate records of their patients for as long as is practicable. They should also be encouraged to chart existing restorations and oral peculiarities of their regular patients, rather than just the treatment which they have provided.


**Summary**

A survey was conducted to determine the state of forensic odontology in Canada. Various police authorities, governmental departments and dental schools were contacted. The findings are discussed and a number of recommendations made.



The authors express grateful appreciation to the various authorities and individuals who cooperated in this study and to Doctor Denis Forest, Université de Montréal, who translated some of the correspondence into French.



Doctor Gardner is associate professor and chairman of the Division of Oral Pathology of the University of Western Ontario, London, Ont, and Doctor Kenny is now attached to the Faculty of Dentistry, University of Toronto.



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*(Continued from page 281)*


Mercury hygiene

evacuator will hold this hazard to a minimum. Conventional, rather than ultrasonic, dental amalgam compacting procedures and pre-proportioned, sealed mixing capsules will also minimize the dispersion of fine particles which can be aspirated deeply into the lungs.

These precautions will do much to eliminate any potential hazard. Now is the time to act.


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# Position of the apical foramen in relation to endodontic therapy

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*One of the main problems in endodontic treatment is the accurate location of the apical foramen. In this article the authors describe attempts to locate the root canal orifices in 40 extracted teeth and show how radiographs can be misleading when the apical foramen does not coincide with the anatomical root apex.*

*Le repérage précis du foramen apical est l'une des principales difficultés du traitement endodontique. Les auteurs décrivent comment ils ont essayé de situer les orifices du canal radiculaire de 40 dents extraites et montrent combien les radiographies peuvent être trompeuses lorsque le foramen apical ne coïncide pas avec l'apex de la racine anatomique.*

The objective of endodontic therapy is the restoration of the pulpless tooth to proper health and function. To do this, the content of the root canal must be removed as far as the dento-cemental junction. At that point the canal should be sealed with an inert material.[1] The exact location of the dento-cemental junction is therefore very important.

One problem arising during endodontic therapy is continued pain in the tooth, which is usually tender to percussion. This discomfort is usually due to over-instrumentation because the position of the dento-cemental junction was not accurately located. The resultant injury and subsequent lack of apical seal are the most common causes of endodontic failure.[2]

This paper explains the causes of this complication and suggests methods for its elimination.

## Materials and Methods

Forty extracted human teeth were selected at random. The apical portions of the roots of each tooth were wrapped with pieces of cotton so as to cover them completely. After opening each tooth, files were inserted into the canals until they encountered resistance. Radiographs were taken at a fixed angulation of 90°. The files were then adjusted until all instruments could be visualized at the radiographic apex.

Small quantities of impression plaster were deposited over the access opening around each file to immobilize the instrument in the position at which it was radiographed. After removing the cotton wrappings from each root, macrophotographs were taken according to the method of Gibson and McFeaters.[3]

## Results

We observed that in 20 instances the file extended at least 1mm beyond the tooth substance. In some cases, the file protruded by as much as 2.5mm (Fig 1).

## Discussion

The following factors help to determine the length of the root canal:[1] (1) knowledge of the normal length of a particular tooth; (2) pretreatment radiographs; (3) apical periodontal sensitivity to instrumentation, as determined by pain and (4) tactile perception of the constriction at the apical foramen.

The first three factors are variable since tooth lengths differ, improper radiographic techniques may alter the shape of the image, and sensitivity to over-instrumentation may not occur in the presence of apical pathosis or local anaesthesia. The fourth factor depends largely on the dentist's ability to recognize the apical constriction. In addition, the radiograph taken during treatment with an instrument in place confirms the canal length.

Although no attempt is made to attach statistical significance to the observations made in this study, it seems that files may quite often protrude beyond the apical foramen and into the periodontal tissues even though radiographs appear to contradict this.

Langeland,[4] commenting on the anatomical and histological location of the apical foramen, states that the actual foramen is not necessarily distinguishable

on a radiograph. Heuer[5] points out that the apical constriction and eventual end point of the canal filling are usually 1-2mm short of the radiographic apex. This may explain the pain encountered during and after treatment—pain which the dentist does not attribute to over-instrumentation since radiographs indicate that work was performed within the canal.

Although we do not offer an exact method for determining the location of the apical foramen, we reiterate that the foramen frequently occurs short of the radiographic apex. Studies by Coolidge, Hess, Grossman and Kuttler[6-9] have confirmed that the root canal emerges slightly short of the root apex in 70 to 80 per cent of cases. Grove[10] has shown that the dentocemental junction does not necessarily occur at the extreme end of the root, but may lie at a variable level short of the true apex of the tooth. Ingle, Orban and Meyer[2,11,12] have described the changes in shape and location of the apical foramen due to functional influences upon the tooth such as occlusal and tongue

Fig 1A

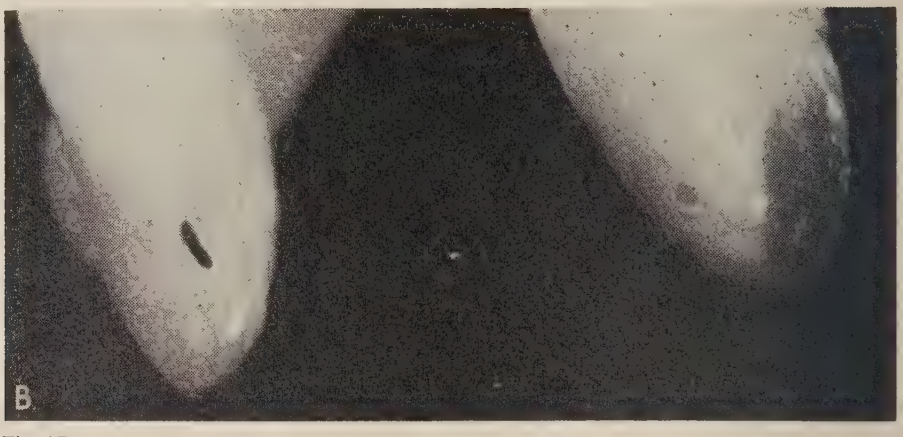


Fig 1B

pressure and mesial drift. Green,[13] in a stereomicroscopic study of 700 posterior root apices, showed that at least half of the major foramina take eccentric positions which deviate as far as 2mm from the apex.

A disadvantage of the routine pre-operative radiograph is that it is only two dimensional. Only the relationship of the foramen to the mesial and distal walls of the tooth is discernible.[14] Pre-operative radiographs taken at various angles will often show where the apical foramen emerges from the tooth. The routine 90° angle view should therefore be supplemented by additional films for a more accurate assessment.

Seltzer et al[15] found that instrumentation beyond the apices of the teeth with no prior pathosis produced more severe periapical reactions than instrumentation confined within the root canal. Another study produced optimal healing when instrumentation and filling were halted 2-10mm short of the radiographic apex.[16] Evidently, slight under-instrumentation and underfilling bring a greater likelihood of endodontic success when the radiographic apex is used to determine canal length.

Fig 1C

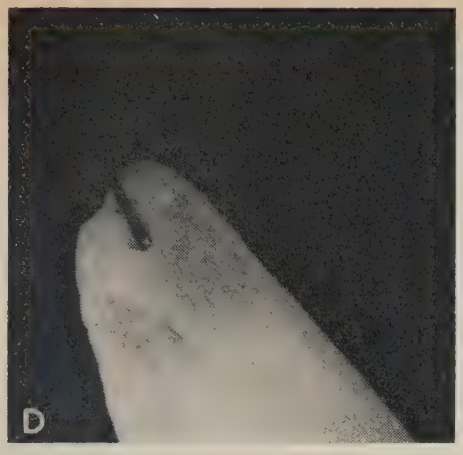


Fig 1D

As a further precaution a definite tapered apical preparation terminating in sound dentine should be used.[14] The choice of canal filling material—gutta percha or silver points—does not preclude the need for such a preparation. It removes gross canal irregularities, is of conical shape in the apical third, terminates just short of the dento-cemental junction and provides a matrix in sound dentine for condensation of the filling material.

When using gutta percha, a lateral condensation technique is best for sealing the root canal space.[1] The gutta percha should be packed against a solid surface. This matrix is provided by the tapered preparation in solid dentine. It retains the integrity of the apical constriction so that the filling material will condense properly without the danger of overfilling and subsequent injury to the periapical tissues.

Although it may not be necessary to obliterate lateral canals, the tapered apical preparation in solid dentine is useful for filling some of these smaller canals.[17,18] Unless the gutta percha is physically prevented from penetrating the apical foramen, there will be insufficient condensation to fill the auxiliary canals (Fig 2).

Fig 1E

Fig 1 A, radiograph of a mandibular molar with a file in the mesio-buccal canal that appears to be in a satisfactory position to start canal preparation. B, photograph of apical area of A. The file extends 1.5mm past the apical foramen. C, radiograph of a maxillary molar with a file in the palatal root. D, photograph of C. The file extends 2mm past the apical foramen. E, radiograph of a file in the canal of mandibular bicuspid. F, photograph of E. The file extends 1.5mm past the apical foramen.

Silver points, too, should be based in solid dentine so that the sealer has a chance to fill any gaps between the points and the wall of the canal. Since the sealer is introduced into the canal ahead of the silver point, an apical preparation in solid dentine also prevents excess sealer from emerging through the apical foramen, forcing the material to move up the canal and conglomerate between the point and the dentine walls (Fig 3).

Fig 1F

**Summary**

Endodontic access was gained in 40 extracted teeth after their apices were covered with cotton. A file was inserted in each tooth and adjusted until radiographs taken at 90° showed that the file had reached the radiographic apex. The cotton was then removed and the apices photographed. In half of the teeth the files protruded 1mm or more beyond the apical foramen. This may explain why postoperative tenderness and unsatisfactory results can eventuate when the canal is enlarged and obliterated beyond the apical foramen to the radiographic apex.

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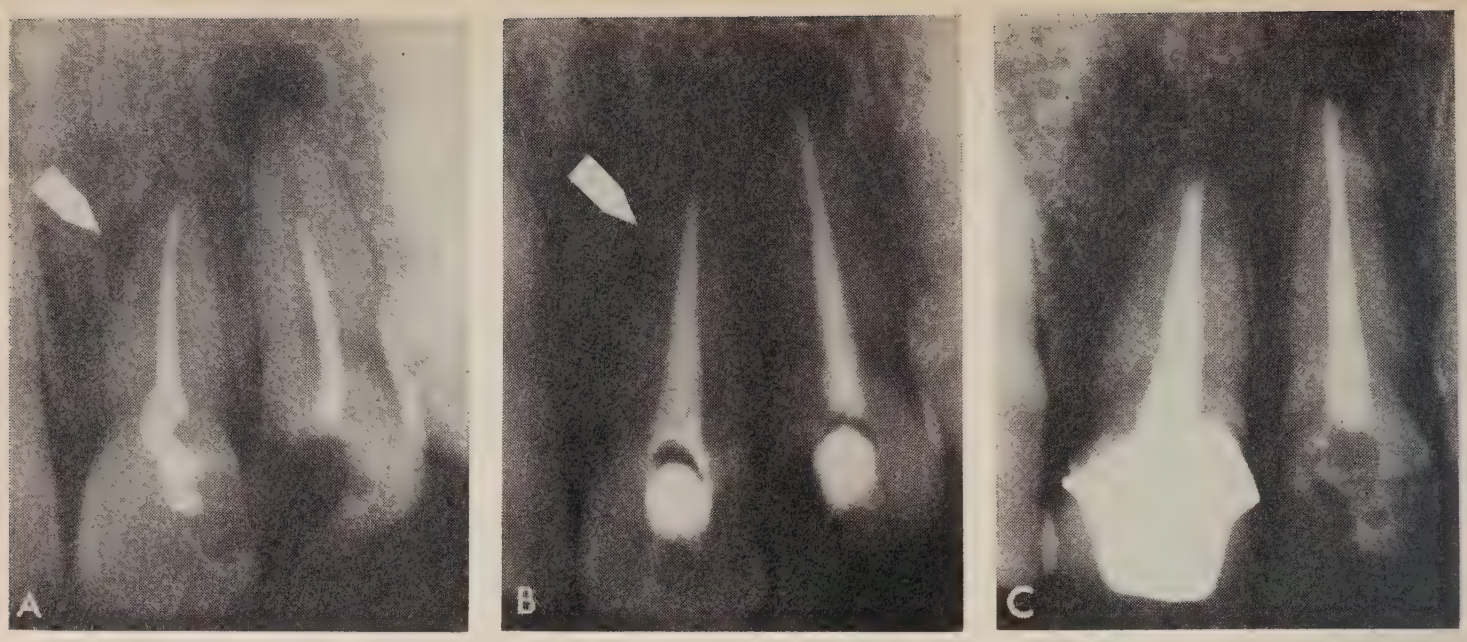

Fig 2 A, pre-operative radiograph of poorly treated maxillary central and lateral incisors. A radiolucency is present on the mesial surface of the central incisor (arrow). B, radiograph taken after the canals were filled. The tapered preparation has retained the filling material and allowed for the extrusion of sealer through the central incisor's auxiliary canal to the radiolucency (arrow). C, radiograph taken one year after treatment. Periapical radiolucencies have disappeared from both teeth.

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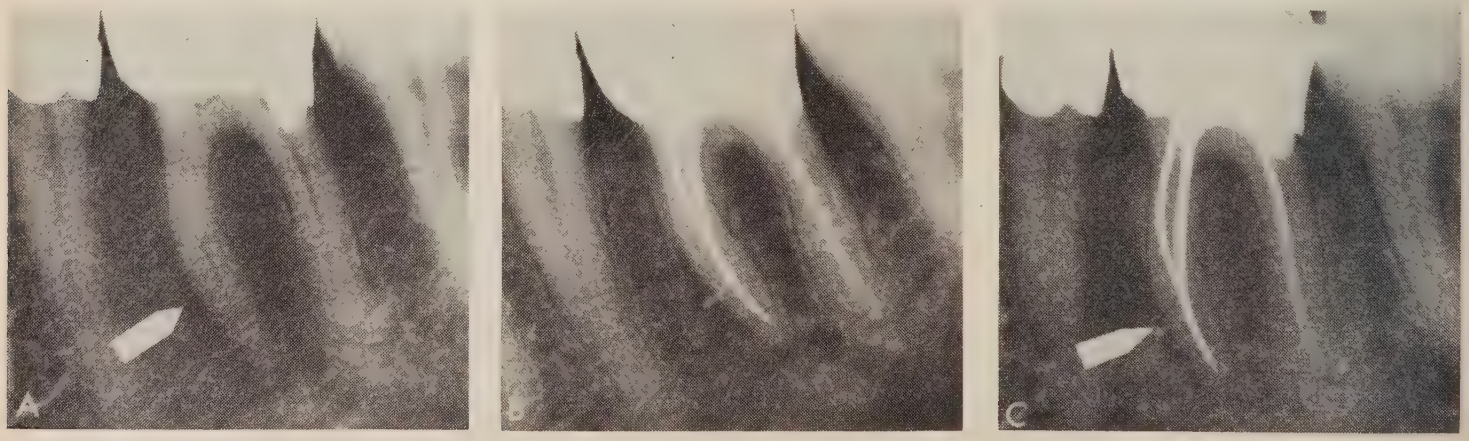
Fig 3 A, pre-operative radiograph of a mandibular molar requiring endodontic treatment discloses a radiolucency on the mesial surface of the mesial root (arrow). B, radiograph taken after the canals were filled. The canals were enlarged with a tapered preparation that produced an apical stop in solid dentine. The mesial canals were filled with silver points and since the sealer could not be pushed through the apex, it packed around the point and extruded through an auxiliary canal toward the radiolucency. C, six months postoperatively, healing of the former radiolucent area is apparent (arrow).



# An evaluation of ketamine (Ketalar, CI-581) for outpatient paediatric dentistry

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Ketamine (Ketalar, CI-581) produces a state of dissociative anaesthesia, a radical departure from conventional agents, which lends itself to more simplified, safer outpatient children's dentistry. The intent of this paper is purely informative and results from a study involving over 350 administrations of ketamine for general anaesthesia in restorative and oral surgical procedures. These were performed with outpatients under the age of 12 in a dental office. The circumstances, requirements and problems related with ambulatory anaesthesia are outlined, and on this basis a comparison is drawn of the relative advantages and disadvantages of ketamine.

*This article results from the authors' clinical experience with 350 administrations of ketamine, a new general anaesthetic. The drug was used while treating young patients in the dental office. The article compares conventional anaesthetic agents and techniques with the methods employed when using ketamine and evaluates its advantages and disadvantages for use in outpatient paediatric dentistry.*

*Le présent article rapporte l'expérience clinique des auteurs qui ont procédé à 350 administrations de kétamine, nouvel anesthésique général. La drogue fut utilisée chez de jeunes patients traités dans le cabinet dentaire. L'article compare les anesthésiques et les techniques classiques avec les méthodes employées en utilisant la kétamine, et évalue ses avantages et inconvénients chez les jeunes patients externes.*

## Present techniques in anaesthesia

Most of the common techniques of general anaesthesia involve combinations of two or more methods or agents. This allows us to utilize the best features of each in achieving a rapid induction, adequate duration, short recovery and, above all, safety. It is exemplified by the practice of administering a short-acting barbiturate intravenously to induce and then maintain the anaesthetic state with inhalational agents.

Another useful technique is to combine local anaesthesia with a subanaesthetic or sedative state. Here the psychosedative merely alters the patient's mood, keeping him awake and cooperative, yet receptive to the procedure. More recently there has been a tendency to use neuroleptanalgesia for outpatient dentistry. With the discovery of ketamine, a state of dissociative anaesthesia can be achieved. We believe that drugs of this nature will greatly influence paediatric dentistry in the future.

## Classes and techniques of anaesthesia

The following summarizes the various classes of agents:

*General anaesthesia*—(1) inhalational agents: nitrous oxide, methoxyflurane (Penthrane), halothane (Fluothane), trichloroethylene (Trilene); (2) short-acting barbiturates: methohexital (Brietal, Brevital), thiopental (Pentothal); (3) non-barbiturates: propanidide (Epontal); (4) neuroleptanalgesics: tentanyldroperidol (Innovar); (5) dissociative agents: ketamine.

*Local anaesthesia plus subanaesthetic states*—(1) psychosedatives: diazepam (Valium), hydroxyzine (Atarax), phenothiazines; (2) narcotics: meperidine (Demerol); (3) belladonna derivatives: atropine, scopolamine; (4) barbiturates: secobarbital (Seconal), amobarbital (Tuinal); (5) nitrous oxide analgesia.

All of these methods possess inherent dangers. When two or more drugs are used, these hazards are compounded—particularly if the agents have cumulative or synergistic effects.

A technique must satisfy the anaesthetic requirement of the procedure to be performed. This determines the duration, depth and complexity of anaesthesia, depending upon the degree of discomfort anticipated. The search for ultra-light anaesthetic levels

compatible with safe, acceptable practice has always been of prime importance in dentistry. Any combination of the preceding agents is acceptable as long as the following requirements are met: (1) effective analgesia or pain control, (2) partial or complete amnesia, (3) patient cooperation, (4) an accessible, dry operative field, (5) minimal impairment of the normal physiology, (6) comfortable positioning of patient, dentist and anaesthetist, and (7) complete safety. The choice depends largely on the experience and preference of the anaesthetist.

Patients requiring outpatient general anaesthesia are those who suffer from mental retardation, emotional disturbance or spastic muscular disorders. Other important applications are in multiple procedures necessitating numerous visits, extremely painful, unpleasant or major surgical procedures, very apprehensive or frankly uncooperative patients, or when suitable hospital facilities—beds, operating rooms, proper instruments and equipment—are not available.

**Requirements for general anaesthesia in the dental office**

It is necessary to meet certain requirements before undertaking general anaesthesia in a dental office. There should be sufficient space to accommodate three staff members. A fully equipped recovery facility, with oxygen, intermittent positive pressure ventilating apparatus, airways and suction, must be available. Conventional anaesthetic apparatus capable of accurate delivery of nitrous oxide, oxygen, halothane and trichloroethylene, together with adequate emergency equipment and drugs should be to hand.

A smooth, rapid induction is essential. The patient often receives no premedication, so the venepuncture must be effected quickly and accurately.

Problems are rarely encountered with a responsible adult. If a child presents with a full stomach, he should be given another appointment. This also applies to patients with a recent upper respiratory infection. Office anaesthesia should not be attempted in patients whose haemoglobin is below 10Gm per cent or when the haematocrit is below 30 per cent. The procedure is also unwise in the presence of asthma, porphyria, allergies, dehydration, elevated temperature, diabetes, and cardiac or respiratory difficulties. Other contraindications include mandibular opening, retrognathia, cervical skeletal disorders, muscular dystrophy, atypical plasma cholinesterase and liver or renal disease.

A short recovery is essential for the ambulatory outpatient. A child must be able to regain quickly his protective reflexes, and a responsible adult should observe the child in the postanaesthetic recovery phase, which must be complete prior to dismissal. Premedicants delay this process and should therefore be used with caution.

Possibly the most serious complication with outpatient cases is fainting during recovery from the anaesthetic. This is a serious hazard when the patient is not in a sitting or semi-reclining position during the induction. Postural hypotension coupled with the cardiovascular depressant effect of many drugs can lead to such deleterious complications as hypoxia, cerebral oedema, brain damage and cardiovascular collapse.

**Ketamine anaesthesia**

All conventional anaesthetics depress the central nervous system and the effect increases as more of the agent is administered. Apart from depressing the central nervous system and obtunding the protective reflexes, such anaesthetics also retard the circulation and respiration. The process is invariably accompanied by a fall in blood pressure and some airway obstruction and respiratory disturbance.

The reverse is true with ketamine. Anaesthesia is induced not by a general depression of the central nervous system but by a blockade of higher centres, so that within the therapeutic range of the drug the level of anaesthesia cannot be deepened. The cardiac and respiratory functions are not affected and the patient is able to maintain a patent airway.

Since ketamine behaves differently from other agents, premedication with depressant agents such as barbiturates or opiates does not facilitate the induction of anaesthesia, although a mild psychosedative may help to make a child more cooperative.

Ketamine is also a mild sialogogue; therefore, when restorative dentistry is planned, atropine or scopolamine should be given in suitable doses. These can be administered separately or mixed with the ketamine.

The patient's response to an intravenous injection of ketamine is rapid. Within seconds he is unresponsive and insensitive to superficial pain. The onset of anaesthesia is closely related to the circulation time, and with dissociative anaesthesia it is important to observe the patient closely. There is an initial flutter of the eyelids and a mild nystagmus before the eyes take on a fixed stare. Speech and any resistance rapidly cease. The procedure may begin 30 to 60 seconds after the intravenous injection. Since the lids do not close the cornea must be protected from sharp tooth fragments or amalgam particles being blown into the eyes with the air syringe. Goggles, ointments or bandages may be used.

While the patient is unconscious the mouth is easily opened, but a mouth prop sometimes has to be used. A muscular resistance can be felt at first, but the jaw relaxes if the force is maintained. Once the jaw is sufficiently open, a block may be used to support it. The tongue maintains a normal position and some movement. Occasionally a swallowing movement occurs, particularly in the lighter stages or in the presence of fluids. Pain or manipulation frequently initiates jaw closure, but the patient will usually obey a request to reopen.

The degree of akinesia is remarkably high. A hand placed on the arm rest of the dental chair usually remains in the same position throughout the procedure. Some patients exhibit a synchronized twitching of the arms, legs, head and neck muscles. This disappears shortly after induction and does not hinder the dentist, since the course of anaesthesia and recovery are not affected. A blotchy skin rash has been observed on the face, upper chest and arms in several patients but is thought to be of no significance.

The most important feature of ketamine is that children maintain a patent airway without manual support. Mechanical airways, nasal inhalers or endotracheal tubes are not required. Respiration is not depressed, although breathing may be irregular. In spite of this, the patient remains well oxygenated.

As in all cases where the patient breathes orally, the dentist must use a rubber dam to ensure that water or loose particles do not compromise the airway. An oropharyngeal partition is not required and may not be tolerated because pharyngeal and laryngeal reflexes are retained. Laryngospasm, gagging or retching in response to suction of the posterior pharynx is noticeably absent. Blood and saliva never pose a problem. Although considerable amounts accumulate, the patient is able to breathe and swallow in response to the accumulation. This may, however, be responsible for postanaesthetic nausea. Since the reflexes are retained, the danger of aspiration is minimized.

The importance of keeping the airway clear is evidenced by a case where during difficult extractions the dentist had depressed the child's jaw, causing a mechanical obstruction. As soon as this was noticed the jaw was elevated and adequate ventilation returned immediately.

If extractions are performed together with restorative procedures, they should be done only after the fillings have been completed and the mouth completely debrided. This delay may permit the passage of painful stimuli since at this point the anaesthesia is lighter. This can be remedied by an injection of local anaesthetic a few minutes before extraction. If additional ketamine is used, however, the recovery will be proportionately delayed.

An alternative method is to allow the child to breathe 70 per cent nitrous oxide for two minutes prior to extractions, which provides analgesia without prolonging the anaesthetic.

The average working time with a single injection of ketamine is 15 minutes. This time can, of course, be prolonged with additional doses without affecting the recovery phase. Second or third administrations are given in amounts of one-half to one-third of the initial dose. Since the dentist knows the duration of the effect of the drug he is able to arrange his work accordingly. While the analgesia is most profound the more painful procedures are carried out.

## Recovery

The average time required for recovery is 90 minutes. Recovery is very gradual and slower than with a short-acting barbiturate. A peculiar inertia persists even after the patient is fully conscious and able to stand up unaided.

It must be emphasized that throughout this period the patient has good control over his airway, can swallow and cough and may be safely left alone.

Vomiting, noted in 20 per cent of the children, occurred always after they became conscious and responsive, and mainly in the higher age groups. Scopolamine and dimenhydrinate (Gravol) may be used to reduce this complication. Many children had headaches during the recovery stage.

A state of delirium was seen in 5 per cent of the cases and seemed to occur more in older children. No adverse or violent reactions were observed. Shivering and stiffness were reported in a few cases. Double vision is a frequent occurrence and probably one of the most persistent side effects. This can be disturbing and should be explained to the parent.

## Advantages and disadvantages

The main advantages of ketamine are that it does not interfere with cardiac or respiratory functions and the patient is able to retain a good airway without support during anaesthesia. There is no peripheral vasoconstriction, the skin is pink and the capillary circulation is brisk.

On the other hand, ketamine has a stimulant quality which increases the heart rate and systolic pressure. This effect, though only slight, is nevertheless sufficient to increase haemorrhage after extraction. Resultant blood can be removed by suction or, if accumulated, swallowed.

Another possible advantage is that hypotension and hypoxia are unlikely eventualities, and fainting is less frequent than with other anaesthetic agents.

The main disadvantage is that there is incomplete muscle relaxation; the dentist must therefore be adept at placing the mouth prop and bite-block. An unexpected mandibular closure may occur as the anaesthesia lightens.

Hallucinations occasionally occur with young patients but are usually neither unpleasant nor disturbing. With older patients, however, this becomes a serious complication, and perhaps constitutes ketamine's main disadvantage for use in adult anaesthesia.

Other disadvantages are postanaesthetic nausea, which, although a possibility with other techniques, is a more frequent occurrence with ketamine; the fact that the eyes have to be protected, since they remain open throughout the procedure; and the prolonged recovery period. This is accompanied by headaches, but they can be controlled with analgesics.

## Summary

In this series of experiments, ketamine is shown to be a satisfactory and efficient anaesthetic agent for outpatient dental treatment, superior to conventional anaesthetic techniques. The retention of the protective reflexes, the excellent maintenance of the airway and the profound analgesia provide a complication-free period of surgery. Despite the simplicity of its administration with minimal equipment, ketamine should only be employed by a competent anaesthetist. This is particularly significant in managing unpremedicated intractable children; here the anaesthetist's skill in performing the venepuncture quickly and with minimal discomfort is most important. Ketamine appears to be extremely safe without the usual pre-operative preparations. Indeed, the drug creates a more desirable physiological state.

It is our opinion that ketamine will help to ensure simple, safe outpatient paediatric anaesthesia in the future. It does not, however, represent a panacea and there is much work to be done in this field. We have not as yet evaluated its long-term effects.

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# Treatment of recurrent aphthous stomatitis with gamma globulin: Report of five cases

**T. M. Kaloyannides, DDS**
**Salonika, Greece**

*Five patients with intractable, recurrent aphthous stomatitis were treated with intramuscular injections of gamma globulin. The quantities administered ranged from 8ml to 16ml (160mcg/ml). All of the patients improved markedly. Some had no further lesions for periods ranging up to 18 months. The few recurrent aphthae in the remaining subjects were much milder. The author warns readers not to draw any unwarranted conclusions in view of the small number of subjects treated and the relatively short period of follow-up observation.*

*Cinq patients souffrant de stomatite aphteuse récidivante et opiniâtre ont été traités à l'aide d'injections intramusculaires de gamma-globuline. Les quantités administrées allaient de 8 à 16ml (160mcg/ml). Tous les patients ont accusé une nette amélioration. Certains n'ont plus présenté de lésions pendant des périodes allant jusqu'à 18 mois. Les quelques aphtes récidivants chez les autres sujets étaient beaucoup plus bénins. L'auteur recommande au lecteur de ne pas en tirer de conclusion hâtive étant donné le faible nombre de cas traités et la période d'observation subséquente relativement courte.*

Aphthous stomatitis or canker sores are characterized clinically by the formation of small vesicles on the tongue and mucous membrane and on the inside of the lips, especially opposite the molar teeth. The vesicles soon burst and leave yellowish white, depressed, painful ulcers.

Aphthous stomatitis is regarded as a viral infection. Once acquired, there is a marked tendency to recurrence. The virus is thought to remain latent in the epithelial cells of the upper respiratory tract or mouth between attacks.

Ramfjord's[1] encouraging results with gamma globulin in treatment of herpetic gingivostomatitis prompted us to try this material for the treatment of recurrent aphthae. This article describes the results in five patients who received intramuscular injections of 8-16ml gamma globulin (160mcg/ml).

## Case 1

This 37 year old woman had an uninterrupted eight year history of recurrent aphthae in different areas of the tongue and oral mucous membrane. The eyes, skin and genital organs were free of lesions. Her menstrual history was normal.

The lesions disappeared within seven days of intramuscular administration of 8ml gamma globulin (20mg/Kg body weight). Six months later she received a second intramuscular dose of 8ml gamma globulin spread over a week. There has been no recurrence of the disease for the past year.

## Case 2

A 40 year old male physician had suffered from continuous, painful, recurrent aphthae on various parts of the oral mucosa and tongue for 12 years. The eyes,

skin and genital organs were devoid of any lesions. Treatment had been ineffective.

The patient was given 12ml gamma globulin (22mg/Kg body weight) intramuscularly over a period of seven days. New aphthae continued to develop but the number of lesions and the severity of the symptoms were notably diminished.

Another 12ml gamma globulin were given 15 days later. The remaining lesions subsided thereafter, and there have been no new ones for the past 14 months.

### Case 3

This 17 year old girl had a five year history of recurring aphthous stomatitis on the tongue and mucous membrane. Onset of the disease coincided with the start of the menstrual history. New aphthae appeared without interruption. Symptoms were usually exacerbated prior to menorrhoea, but there were no ocular, genital or dermal manifestations. Intermittent treatment had given no relief.

The existing lesions faded after administering intramuscular injections of 8ml gamma globulin (23mg/Kg body weight) spread over six days. There were no new lesions during the following three months. Thereafter two to four aphthae appeared shortly before the start of the next three menstrual cycles. These lesions faded in four or five days. After the third episode the patient received another 8ml gamma globulin over six days. There have been no further outbreaks during the past 15 months.

### Case 4

This 24 year old man experienced recurrent, painful oral aphthae for a year and a half. He, too, had no ocular, genital or dermal manifestations.

The patient was given 8ml gamma globulin (20mg/Kg body weight) spread over a period of six days. Because of a continuing recurrence of new lesions, he received another 8ml, in six days, 15 days after the earlier injection.

In the past year this patient has only had one new palatal lesion which occurred four months ago. He attributes it to local irritation from a hot beverage.

### Case 5

A 33 year old female dentist complained of recurrent aphthae on the tongue and oral mucosa for the past 10 years. Once again, there were no ocular, genital or dermal lesions. The oral manifestations were unrelated to the patient's menstrual cycle but seemed to coincide with periods of psychic stress.

This patient received 8ml gamma globulin (30mg/Kg body weight) in six days. She developed some further lesions and was given another dose of gamma globulin, again spread over a period of six days. Thereafter the lesions faded. Three new aphthae appeared four months later. Since then there has been no evidence of new lesions for the past 10 months.

### Discussion

The results of gamma globulin therapy in these five patients are encouraging. The first patient has been free of lesions for 18 months since the initial administration of gamma globulin. The second patient has had no lesions for 14 months since receiving the second dose of gamma globulin. In the third patient, cyclical outbreaks correlated with the subject's menstrual history have been arrested for 15 months. The two remaining cases experienced sporadic recurrences, each one shorter and less severe than its predecessor.

The quantities of gamma globulin administered were small, ranging from 8ml to 12ml for each series of injections.

These patients were under continuing supervision for periods ranging from 10 to 18 months. But the number of subjects was too few and the observation period was too short to permit any valid conclusions.


### Summary

Intramuscular injections of gamma globulin were given to five patients with intractable aphthous stomatitis. The results were encouraging. Some of the patients had no further lesions for periods ranging up to 18 months. The remaining subjects developed a few new aphthae, but these lesions were considerably milder and quite rare.



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1 Ramfjord, S. P. Recurrent herpetic gingivostomatitis treated with gamma globulin. Oral Surg 13:165, 1960.


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*(Continued from page 281)*


Mr. Benson's bundle

Their request is justified. For unless Ottawa comes through with more generous assistance so as to reduce the cost of training, total investment in turning out the dental teachers and researchers this country requires may well be eroded.

# The teaching of rubber dam

**P. C. Desautels, DDS**
**Indianapolis, Indiana**

All operative techniques and physical properties of dental materials described by authorities are based on the assumption that a rubber dam is in place. However, the rubber dam has never been popular in the dental profession. A survey published in 1967 by Going and Sawinski[1] reported that less than half the 1,251 dentists consulted use rubber dam for operative and endodontic procedures and many hardly use it at all. In this report, the author, a graduate student at the University of Indiana, questioned 25 of his fellow students, who all intend to teach dentistry, on their opinions of the use of rubber dam, and the best method of instructing undergraduate students how to apply it.

The respondents were asked to evaluate their undergraduate training in rubber dam as well as their motivation toward rubber dam at the time of graduation. They were also asked to outline what methods of teaching rubber dam placement they would advocate and at what level such instruction should begin. In addition they were asked to give their comments on the use of rubber dam in private practice.

## Undergraduate training

The majority of the respondents felt that they had received good undergraduate instruction in rubber dam but, in spite of this, only a few had been sufficiently motivated by their training to use the rubber dam regularly when they started to practise. The others appreciated it more as they pursued their graduate studies. One respondent mentioned that he had returned to rubber dam after discovering the disadvantages of working without it.

## Teaching methods

It was agreed that a teacher should insist on routine application of the rubber dam since its value is best appreciated in the most difficult cases. He should offer as much practical help and encouragement as possible and avoid the temptation to allow the student to use cotton rolls as an alternative.

Most students felt that practical demonstrations were the most effective method of teaching. The theoretical side should be minimized; instead, visual aids should be used wherever possible to familiarize students with techniques. Most of the respondents agreed that instruction on the placement of rubber dam should begin in the first or second year and that at the fourth year level emphasis should be laid on the practical and economical advantages of using rubber dam.

## Uses of rubber dam

The majority of the respondents conceded that rubber dam should only be used in operative dentistry but agreed that it had many advantages. It cuts down time on work and promotes four-handed dentistry so that more progress can be made at each appointment. Assistants can be trained to apply rubber dam. Other advantages are that when placing restorations in less accessible areas, the use of rubber dam assists visibility, dental materials are protected from oral contamination and the patient is not obliged to rinse out his mouth at frequent intervals. A better quality of restoration is achieved since it is done in a clean, dry field.

Only two respondents said that rubber dam did not save time or money. They felt that it took too long to apply, that patients did not like it and that an assistant always had to be present to hold the vacuum ejector.

## Conclusions

The graduate students questioned in this report felt that the use of rubber dam could be much more widespread if teaching methods were improved. They suggested that teachers should adopt a practice-oriented approach when instructing undergraduate students in the use of rubber dam and offer as much practical help as possible. As a result students might feel more confident about using rubber dam once they entered private practice.

Doctor Desautels, who is a lecturer at the Faculté de Chirurgie Dentaire, Université de Montréal, prepared this report while on leave of absence at Indiana University. He expresses appreciation to Professor Paul Barton, Indiana University, for assistance and advice in the preparation of the article. His present address is: 1121 West Michigan Ave, Indianapolis 46202.

1 Going, R. E. and Sawinski, V. J. Frequency of use of the rubber dam: a survey. J Amer Dent Ass 75:158, 1967.

# Induced eruption and functional use of an unerupted third molar

**James Sim, DDS**
**St. Catharines, Ont**

This article describes how a mandibular third molar was encouraged to erupt and subsequently utilized as a bridge abutment.

## Report of case

*Examination*—The patient, a healthy 21 year old woman, requested a fixed bridge to replace several miss-

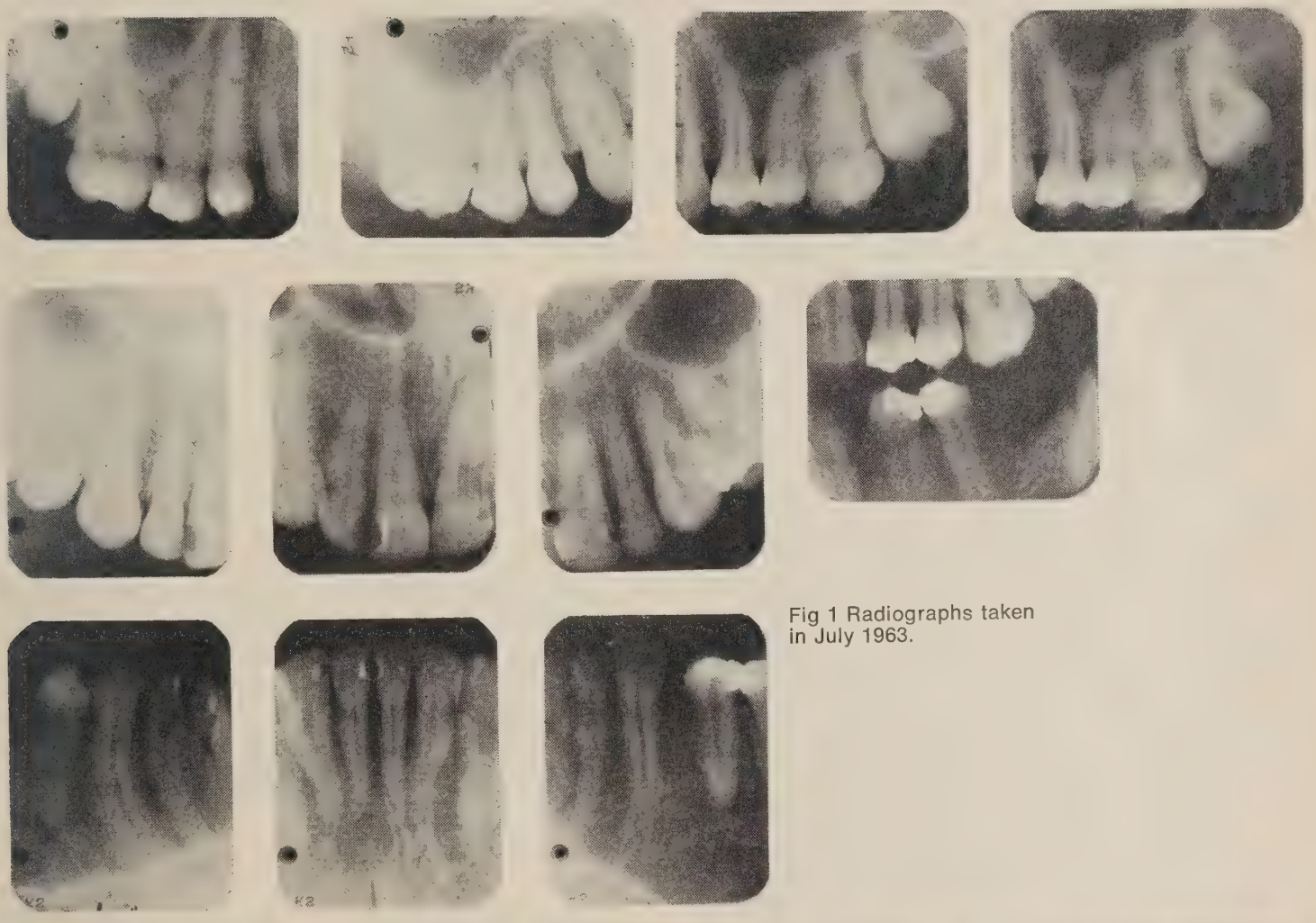

Fig 1 Radiographs taken in July 1963.

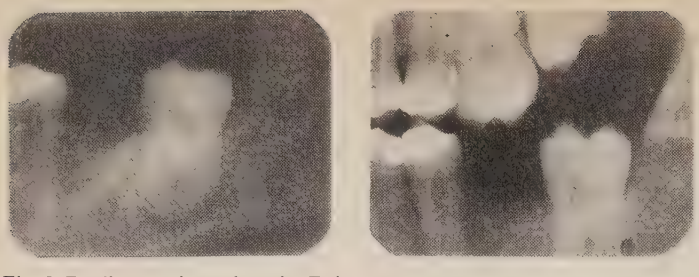

Fig 2 Radiographs taken in February 1964.

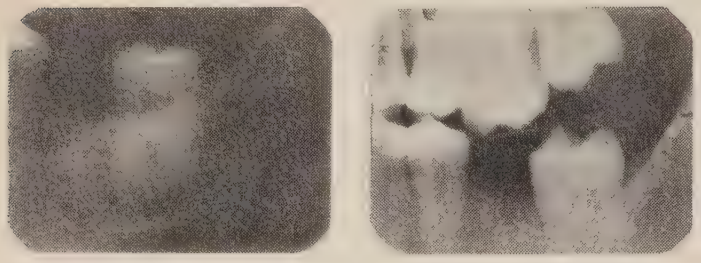

Fig 3 Radiographs taken in August 1964.

ing posterior teeth in the lower jaw. She had lost six teeth, including both upper first molars and both lower first and second molars. The upper third molars were unerupted, as was the distally inclined lower left wisdom tooth. The remaining teeth had extensive restorations (Fig 1), but there was no evidence of caries and the periodontal tissues appeared quite normal.

With the patient's explicit approval, we decided to uncover the lower left third molar and move it medially to serve as an abutment for a fixed bridge.

*Treatment*—Therapy began in September 1963 when, under local anaesthesia, a vaginal wound was made over the unerupted mandibular molar. The incision was extended upward along the buccal aspect of the anterior border of the ascending ramus. Bone over and distal to the molar was removed with a No 8 round bur in a conventional straight handpiece. The wound was packed with a surgical periodontal dressing[1] which was changed weekly for the next six weeks. Supportive therapy consisted of antibiotics and analgesics. Healing proved uneventful and the tooth was allowed to erupt naturally (Fig 2).

In August 1964 (Fig 3) we began orthodontic treatment, using a removable maxillary appliance with bilateral clasps and acrylic resin covering the lingual and labial aspects of the teeth for added stability. A molar band with labial and lingual hooks was cemented to the lower third molar. Elastic bands extending between these hooks and similar ones embedded in the upper appliance were used to move the lower tooth forward.

Six months later (January 1965) the now partly erupted maxillary left third molar was totally exposed under local anaesthesia, using an electrosurgical scalpel. The operative site was covered for one week with a surgical pack.

Later that month prefabricated bands with hooks were cemented to the upper and lower left wisdom teeth. The upper band had a lingual hook while the lower one had a buccal hook. Cross-elastics were used to improve the buccolingual relationship of the two teeth and bring them into satisfactory occlusion.

In March a fixed prosthesis was made for the right posterior segment of the mandibular arch.

The bands on the left third molars were removed in November, allowing these teeth to stabilize in their acquired functional position. Two months later (January 1966) a further fixed prosthesis was placed for final restoration of the left mandibular segment. This consisted of internal pin-retained inlays supporting a cast hygienic pontic arm and an extra-alveolar anterior arm with a semi-circumferential rest on the cuspid for added stability (Fig 4). This appliance (Fig 5) has served satisfactorily for five years.


**Summary**

An unerupted mandibular third molar was uncovered, induced to erupt into occlusion and utilized as a bridge abutment. The patient's understanding, perseverance and constant cooperation were major factors contributing to the successful outcome of the treatment.



Doctor Sim, formerly with the Departments of Periodontics and Oral Diagnosis at the Faculty of Dentistry, University of Toronto, practises at 131 Ontario St, St. Catharines.



1 Goldman, H. M., Schluger, Saul and Fox, Lewis. Periodontal therapy. Ed 2. St. Louis, Mosby, 1960.


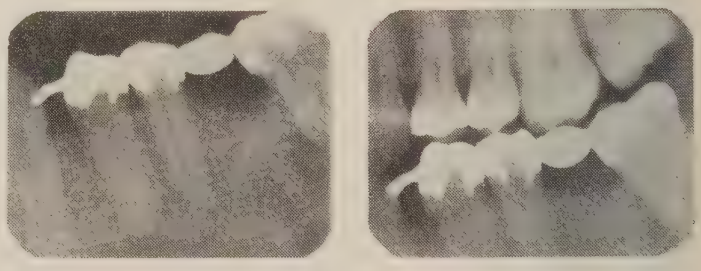

Fig 4 Radiographs taken in February 1966.

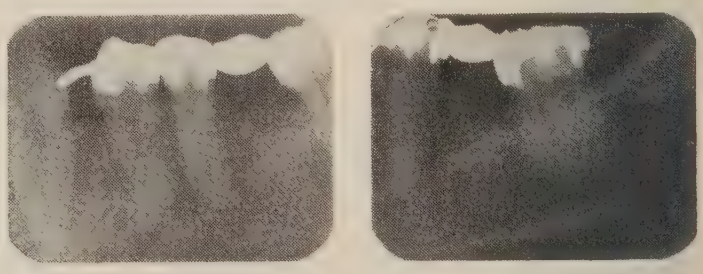

Fig 5 Radiographs taken in October 1968.

# A matter of heart and mind

The price of a dental education is often financial privation—and sometimes chagrin.

Take the case of the father who sued his son some years ago to recover the money he had paid for the son's dental education. The son contended that his father had volunteered this aid, but the father produced a letter from his son acknowledging the debt and promising to repay it by monthly instalments after graduation. So the judge ruled in favour of the father. Understandably, the two did not speak during or after the trial.

Perhaps the father may have needed the money; why else would he have gone to such lengths to recover the debt? The son, on the other hand, just starting in practice, may have found it a hardship to meet this obligation. But regardless of who was at fault, the story has a positive aspect because it reminds us about the time, money and sacrifice entailed in acquiring a dental degree.

The cost of dental education is admittedly high. But it could be very much higher were it not for the generosity of the profession and that of other donors—channelled through the Canadian Fund for Dental Education. Without this support, dentistry would long ago have shrivelled into an occupation for the affluent or the exceptionally dedicated. Many promising young persons who make excellent practitioners, specialists or dental teachers would have been discouraged by the sheer cost of it all.

In free societies, such problems are solved by the slow process of growth and compromise, and seldom by dispensation from on high. The result is that the solutions go too far in the view of some, but not far enough in the view of others. One of the better examples of this necessary halfway house is the Canadian Fund for Dental Education. Elsewhere in this issue are details of what the Fund has accomplished since 1964, and what more could be done with additional support from the profession.

There are many good reasons for helping the Fund toward its goal. There are, for instance, money reasons —contributions are tax deductible, and voluntary aid is cheaper in the long run than government largesse. But there is one telling reason, more important than all of these, which has to do with plain self-interest.

Dentistry is going through a rather severe period of introspection. The profession has its fair share of problems, and dentists cast more than the customary sidelong glance at their professional image. They can polish that image by supporting the CFDE. They can enhance their reputation by demonstrating that the profession is not simply sitting on its hands. And they can win public esteem by leading a frontal attack on the educational bottleneck.

Dentistry has a heart. And dentists are also generous. But, if generous collectively, they are also procrastinating individually, as most people. They are as much inclined to put off till tomorrow what they don't have to do today. Which is why we urge them now to note CFDE month--October—and be generous with their contributions.

# Une question de coeur et d'esprit

Le coût d'une éducation crée souvent des difficultés financières, et même parfois une certaine aigreur.

Voyons l'exemple d'un père qui décida de poursuivre son fils en justice il y a quelques années afin de récupérer l'argent qu'il avait dépensé pour le cours dentaire de son fils. Le fils soutenait que son père avait offert cet appui volontairement mais le père représenta une lettre du fils qui reconnaissait la dette et qui promettait de le rembourser en versements mensuels échelonnés après avoir fini ses études. Le juge décida donc en faveur du père. Cela se comprend qu'ils ne se parlèrent plus ou durant ou après le jugement.

Peut-être le père avait-il besoin de l'argent; sinon pourquoi aurait-il poussé les choses si loin? Le fils, pour sa part, qui venait à peine d'ouvrir son cabinet, avait peut-être eu des difficultés à faire honneur à ses engagements. Mais, sans avoir à décider de la culpabilité de personne, cette histoire sert d'exemple manifeste parce qu'elle nous rappelle le temps, l'argent et les sacrifices que comporte l'acquisition d'un diplôme dentaire.

Le coût de notre éducation est très élevé, tout le monde le sait. Mais il le serait encore beaucoup plus, si la générosité de la profession dentaire et celle d'autres contributeurs, par l'entremise du Fonds canadien pour l'enseignement dentaire, n'y avait remédié. Sans cet appui, la dentisterie ne serait qu'une occupation ouverte aux riches ou à ceux qui sont prêts à faire d'immenses sacrifices. Combien de jeunes gens qui sont maintenant praticiens, spécialistes ou professeurs, auraient été découragés par des déboursés insurmontables.

Dans une société libre, ces problèmes sont résolus par le long travail de la croissance et de l'accommodement, et très rarement par un décret des autorités supérieures. Les solutions sont alors trop avancées pour certains, tandis qu'elles ne vont pas assez loin à l'avis d'autres individus. Le Fonds canadien pour l'enseignement dentaire représente donc une demi-solution. Dans une autre partie de cet exemplaire du Journal, vous trouverez les détails de ce que le Fonds a accompli depuis 1964 et les réalisations supplémentaires qui pourraient voir le jour si l'appui que donne la profession était augmenté.

Il y a plusieurs bonnes raisons d'aider le Fond à atteindre son objectif. Il y a, par exemple, des raisons monétaires — les contributions peuvent être déduites de l'impôt, et l'assistance volontaire est meilleur marché en fin de compte que les largesses d'un gouvernement. Mais il existe au moins une bonne raison qui est plus importante que toutes les autres, et qui se rapporte surtout à notre intérêt personnel.

L'art dentaire vit en ce moment dans une phase d'introspection. La profession a sa bonne part de problèmes et les dentistes promènent leurs regards vers le symbole professionnel qu'ils présentent au public. Ils peuvent rehausser leur réputation en appuyant le FCED et en démontrant clairement que la profession ne dort pas debout. Ils peuvent se mériter la considération de la population en s'attaquant directement à l'embouteillage qui existe dans l'enseignement.

L'art dentaire a du coeur. Les dentistes sont généreux. Mais s'ils sont généreux collectivement, ils ont aussi tendance à temporiser, tout comme le reste du monde d'ailleurs. Ils ont autant tendance à remettre à demain ce qu'ils ne doivent pas accomplir aujourd'hui. Et voilà pourquoi nous les encourageons maintenant à prendre note du mois du FCED — octobre — et à être généreux quand le moment sera venu de faire leur contribution.

# Letters/Courrier

*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.*

### Maxillary osteotomy for apertognathia

Orthodontic treatment has been very successful for most cases of malocclusion and is still the treatment of choice in malocclusion. However, there are a few indications for correcting malocclusion by surgical means. Surgical treatment for prognathic mandibles has been well established in this continent and in Europe. Within the last five years maxillary surgery has also taken a major step in treating some Class II and open bite cases which cannot be treated by conventional orthodontic means.

The article by Doctor Khosla (June Journal) brings up some very pertinent points regarding the treatment of these cases.

1. Pre-operative evaluation: This is the most important part of treatment of any surgical orthodontic case. In conjunction with an orthodontist, pre-operative study casts and cephalometric evaluation are a must. A thorough discussion leads to the ideal way of treatment best suited for the individual case.

2. The surgical technique is a simple one that can be mastered easily. However, this operation should only be performed by surgeons who have a good knowledge of occlusion and of the anatomy of the area involved. Occlusal harmony is the basis of the treatment and if one has no knowledge of the occlusion or the underlying bone structure, he should not undertake the surgical part of the case. The surgeon should have good knowledge of cephalometric evaluation as well.

3. Postoperative care is also an important facet of the treatment. In this connection, Doctor Khosla points out that some teeth were non-vital for a short period. It has been shown experimentally in monkeys (and established clinically) that vitality of the teeth depends on the blood supply. In the one-stage technique of maxillary surgery the blood supply re-establishes itself very well. Tooth loss is therefore either minimal or due to faulty technique.

4. Postoperative orthodontic treatment to correct the minor faults should also be the integral part of this technique.

More and more of these cases are being treated by oral surgeons. They have a role to play in surgical orthodontics where indicated.

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*College of Dentistry*
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### Induced eruption and functional use of an unerupted third molar

Both Doctor Sim and his patient are to be congratulated for the successful completion of the case described in your August issue. Patient cooperation is essential before a treatment as outlined can even be attempted.

Though it is not stressed in the article, the patient has overcome a very high caries rate, probably by adopting meticulous oral hygiene habits. These habits are essential for maintaining the dentition throughout the treatment period, and they also indicate the dental awareness of the patient that is essential for tolerating the inconvenience of orthodontic treatment with removable appliances at this age. In essence, this new state of oral hygiene justified the surgical, orthodontic and prosthetic procedures outlined in the article. These procedures, in turn, will enable the patient to anticipate a long period of improved dental function.

*J. H. Snedden, DDS*
*569-2 Street SE*
*Medicine Hat, Alta*

### Rubber dam

Re: "The Teaching of Rubber Dam" (August Journal). Doctor P. S. Desautels' survey of graduate students is interesting and the conclusions entirely predictable. The acquisition of the facility for routine rubber dam placement can only be achieved by a disciplined mental approach and constant clinical practice by the dentist or student.

At the University of Toronto students are taught by practical demonstration and TV videotapes to apply rubber dam routinely throughout the restorative dentistry program. This instruction is initiated in the first dental year and continued during the four years of undergraduate training.

Our policy at the Toronto dental school is to motivate students to appreciate the advantages of an operative field isolated by correct rubber dam placement.

In the clinics all operative procedures utilizing amalgam, resins, silicate cements or gold foil and all endodontic procedures must have the teeth isolated with rubber dam. Clinical demonstrators instruct and assist students in applying the rubber dam in different situations.

In this day of four handed high-speed dentistry with the patient in a reclining position the routine use of the rubber dam must be recognized as a major contributor toward patient and operator comfort and convenience.

There is no question that rubber dam provides the only acceptable environment for efficient high quality restorative dentistry.

*J. H. Hibberd, DDS, MDSc*
*Professor and Chairman*
*Department of Restorative Dentistry*
*University of Toronto*

### Insured oral surgery benefits

Recent issues of the *Journals of the Canadian and Ontario Dental Associations* contain letters and other contribu-

tions regarding the extraction of teeth as an insured benefit in publicly subsidized health programs. The Ontario Society of Oral Surgeons wishes to state its position on this matter.

For about five years, Ontario has had a health care plan (OMSIP, then OHSIP) which included oral surgical benefits under certain conditions, the most pertinent of which was that the patient be admitted to hospital. This "in-hospital" stipulation created some undesirable sequelae: (1) Most dentists do not have access to hospitals and, as a result, their patients were denied this benefit. (2) There is a chronic shortage of hospital beds and the demand for beds for dental patients aggravated an already serious situation. (3) The cost of the services provided was materially increased by adding to the surgeon's fee, the fees of the examining physician and the anaesthesiologist, and the per diem and other hospital charges which accompany each admission. (4) The economic factors caused many procedures to be performed in hospital when they could have been performed more efficiently in the dentist's office.

Therefore on November 11, 1970 the Ontario Society of Oral Surgeons passed a resolution that the in-hospital stipulation be removed from the legislation governing the Ontario Health Services Insurance Plan, and the resolution was forwarded to the Ontario Dental Association for action.

An incremental dental health care plan for children is justifiably high on the list of priorities of the Ontario Dental Association and the Ontario Society of Oral Surgeons supports this position wholeheartedly; however, because one supports the principle of prevention does not mean that one should forsake the benefits of treatment. Strong campaigns have been launched to discourage the use of tobacco in an effort to reduce the incidence of oral and lung cancer. Yet, fortunately, we do not hear of anyone who would discourage the treatment of those unfortunate individuals who have the disease. Victims of automobile accidents are treated without regard to whether or not they exercised the preventive measure of wearing a seat belt and shoulder harness. Similarly, there are those who require active treatment of dental and oral disease even though much of that disease is the result of neglect – neglect for which the dental profession must surely assume some of the responsibility.

The argument is all too often made that insurance payment for extractions discourages restorative dentistry. This society disagrees strongly with this opinion. Few dentists will extract teeth unnecessarily. To advocate removing payment for extractions to prevent abuse is an affront to the honesty of organized dentistry. To attempt to regulate professional standards of care via the fee schedule will fail as those few dentists that may extract teeth unnecessarily will still do so for expediency. It would be better to educate patients to seek dental care before teeth become unrestorable.

At its meeting in May the Board of Governors of the Ontario Dental Association instructed its negotiating committee to negotiate with OHSIP for inclusion of the ODA incremental health care plan for children. The committee was also empowered to seek removal of the in-hospital stipulation from existing legislation, but to exclude the extraction of erupted teeth from the plan entirely. Although such action would mainly affect the members of our society and, even more importantly, the patients they serve, neither the negotiating committee nor the Ontario Dental Association requested consultation with the Ontario Society of Oral Surgeons. The Ontario Society of Oral Surgeons did present a brief to the ODA Board of Governors, but not at the request of the ODA, and we believe this brief was not adequately considered.

We believe that the incremental dental health care plan is a strong and logical program which should be implemented on its own merit whenever the government is able to do so. We do not believe it is necessary to cease the surgical treatment of infected mouths to accomplish this. We believe that dental and oral disease will only be controlled through an intelligent combination of research, prevention, treatment and education. While surgery is usually considered in the treatment category, nearly all of oral surgery is preventive as well in that it prevents the development of more serious sequelae. In addition, a parent with poor oral health will be unlikely to foster good oral health for his children.

We are concerned about those people in our population whose teeth are either totally or partially beyond repair. Fear, negligence and poverty are the reasons that they have allowed their mouths to deteriorate to their present condition. To remove payment for the extraction of unrestorable teeth will once again prevent patients from seeking treatment until they have gross pain and infection. The removal of infected teeth that cannot be restored prevents the development of cystic changes and, in some cases, malignancy. It also prevents inflammatory lesions which frequently make patients acutely ill. Among the latter are acute alveolar abscess, cellulitis, Ludwig's angina, osteomyelitis and their accompanying bacteraemias and septicaemias.

The economic barrier has been reduced and can be reduced even further. Let us enjoy the benefits of an incremental dental health care plan for children. Let us remove the "in-hospital" clause but let us not penalize those who already have irreparable teeth.

*Howard Phillips, DDS*
*President*
*Ontario Society of Oral Surgeons*
*145 Sheppard Ave E*
*Willowdale, Ont*

# EXECUTIVE DIRECTOR'S PAGE

W. G. McIntosh, DDS

**International items**

The Canadian Dental Association is one of 72 national member associations of the Fédération Dentaire Internationale (FDI) representing approximately 300,000 dentists in 65 countries. The FDI objectives are "to establish and encourage international programs which will advance the science and art of dentistry and the status of the profession of dentistry in the interest of improved dental and general health for all peoples." The legislative body of the FDI (General Assembly) along with its council and several working commissions meets annually either at annual sessions or quinquennial congresses to conduct the business and determine the policies of the organization. The annual meetings are held in conjunction with a scientific program and a trade show, both of which display the international nature of the Federation. The venue of the annual session moves around the world and is selected by the General Assembly on the basis of invitations from national member associations.

The Bundesverband der Deutschen Zahnärzte was the host for the 1971 annual meeting of the Federation which was held in Munich, Germany, June 16-22. The total attendance was approximately 6,000 from 65 nations.

A highlight of the Munich sessions was the dental trade show which was held in conjunction with the FDI meetings. The dental manufacturers and suppliers in Germany organize their own trade show every three years. This year saw the largest and most successful show ever held, with over 500 exhibitors from many countries around the world.

Supporting membership in the FDI is, with few exceptions, a requisite for registration at the annual sessions. Canada at the last count had 212 supporting members for 1971 — not a high percentage of our members when compared with the number of participants from many other countries. For example, Australia with 3,843 dentists has 413 supporting members; Denmark with 3,580 dentists has 123 supporting members; Germany has 1,561 out of 31,200 dentists; the United Kingdom has 623 out of 15,159 dentists; and the US has 2,453 supporting members out of 100,000 dentists.

Quite a large contingent of Canadian dentists and their wives were on hand to enjoy the scientific and social programs, both effectively organized by the Bundesverband der Deutschen Zahnärzte. I was privileged to be the official CDA delegate to the General Assembly and other business sessions.

A more complete report on the 1971 FDI meeting will appear elsewhere. In the meantime, I know many readers will be interested to know that Harold Hillenbrand of Chicago, executive director emeritus of the American Dental Association, succeeded Jack Stork of the Netherlands as president of the Federation. This is a two year term in the Federation and the members look forward to two very successful years under Doctor Hillenbrand's capable leadership.

Dentists attending this year's CDA annual meeting in Ottawa will have an opportunity to meet President Hillenbrand and also Doctor Gerald Leatherman of London, England, the FDI executive director. For the first time at a CDA meeting an FDI breakfast is to be held Friday morning, October 1, at the Chateau Laurier. Both Doctor Hillenbrand and Doctor Leatherman will be on hand and Doctor Leatherman will speak briefly on FDI activities and particularly about the 1972 congress to be held in Mexico City, October 22-26. Dentists who are interested in the FDI and those who would like to learn more about it should attend the October 1 breakfast.

Another international dental organization held its annual meeting in Copenhagen, Denmark, during the week following the FDI sessions. The American Dental Society of Europe is a small (membership approximately 200), but active dental organization with members from most of the European countries. It held its 77th annual meeting June 29 through July 2 in Hans Christian Andersen's famous city.

To become a member of the American Dental Society of Europe, a dentist must have attended dental school in Canada or the United States of America. The secretariat, located in London, England, is under the capable direction of the society's honorary secretary, Doctor Don Derrick, a graduate of the dental faculty, McGill University.

Whereas most of the FDI scientific and business sessions are given in four languages by simultaneous translation, all sessions of the American Dental Society of Europe are in English.

The Canadian Dental Association had not been officially represented at the society's annual meetings for some time. It was, therefore, a particular privilege for me on this occasion, along with a small number of other Canadian dentists, to participate in another fine scientific and social program at which we were made to feel most welcome.

Attendance at international dental meetings provides personal and scientific benefits that cannot be readily duplicated. Fortunately, the proposed revisions to our Income Tax Act appear to recognize as income deductible items legitimate expenses for such purposes.

*(Continued on page 342)*

# The Canadian Fund for Dental Education: A leadership challenge for the profession

**Harold Hillenbrand, DDS**

Three thousand seven hundred dentists from 67 countries participated in the 59th annual session of the Fédération Dentaire Internationale in Munich, Germany, on June 22. As one might expect a great range of topics was under discussion during the meeting but running through it, like a tarnished thread in a silver brocade, was the present and potential ability of the dental profession in all countries of the world to meet personal and national dental health needs no matter what the state of these countries' development—professionally and economically.

No country had the temerity—or, perhaps, the brashness—to claim that it had, or could look forward in the predictable future, to an ultimate solution for the problem of better dental health for every citizen. But there was great hope everywhere that, at long last, dental health was being recognized increasingly by the public, the profession and by government as an essential part of the totality of health which brings rising standards of living and production to every land.

Most of the countries were eager to gain from the advice and experience of other countries but each also seemed to recognize that its own program must be designed within its own national resources, traditions and aspirations.

There are, for example, 17 countries in French-speaking Africa and nine English-speaking countries on the same continent which do not have established national dental associations. In some of these countries the ratio of dentists to population is one to several hundreds of thousands or, even, to millions. Their solutions for their own, almost unimaginable problems are necessarily quite different, say, than those of Canada and other well developed nations. Yet Canada has a dentist-population ratio of 1:2,884 at the present time and this will rise to only 2,573, estimated, by 1980. The dental hygienist to dentist ratio is 1:10. Yet even with this formidable dental work force, can Canada meet its obligations to dental health without new, sustained and greater effort?

In the view of one who has served as the administrator of a large dental association for more than two decades, and who now has an overview of the world's dental health situation as president of the Fédération Dentaire Internationale and as a new member of the Board of Trustees of the Canadian Fund for Dental Education—the answer, unfortunately, must be "no" unless new

*Doctor Hillenbrand is president of the Fédération Dentaire Internationale and a trustee of the Canadian Fund for Dental Education.*

resources and a new will to do the job are brought into being.

It is not wholly correct that mere multiplication of the number of dentists will solve all problems related to dental health.

In the first place, it takes six years after high school to educate a dentist. It takes about eight years to get a new dental school off the drawing board and start producing dentists. It takes scarce dental teachers to train increasing numbers of dental personnel and the need for teachers is, perhaps, the greatest need of the day in dental education.

According to the World Health Organization Canada will need at least 200 more full-time teachers by 1978 if the 10 dental schools are to graduate the capacity number of 633 dentists annually.

But even with the construction and enlargement of the dental schools, with more effective programs to recruit young men and women to the profession and with the procurement of more dental teachers, in my view, the national dental health problem in Canada—and in most of the other countries of the world, including the United States—cannot be met. The report of the Wells Committee indicates that only one-third of the population's service requirements are now being met in Canada.

Increasing population, a public better educated to the need for comprehensive health care, a greater appreciation of the lifelong value of dental health, rising levels of personal income and the acceptance of the concept that dental health is a right rather than a privilege—all of these indicate that the demand for dental health services will rise rapidly and immediately. No profession can refuse to recognize and meet this challenge. But how?

With an almost stable work force of dentists, how possibly can the new demand for dental care be met?

The dentist must work more productively utilizing the advanced technology which is available to him; there must be more research in the prevention and control of dental diseases; more workers must be added to the dental work force in order to provide the additional hands that are needed.

The last can be done only by training more dental auxiliaries and giving them the duties, under appropriate supervision of the profession, to meet the local and the national need. The Royal Commission on Health Services, the Wells Committee and the Ontario Committee on the Healing Arts have pointed out the urgent need to train more qualified dental auxiliaries and Canada has pioneered some important programs in this area.

This somewhat lengthy introduction is not meant to point out the national need, for this is well known. Its purpose is to show that dental health is an important national problem which must enlist the total resources of all public and private agencies with an interest in the total health of the nation.

Dentists must have a unique role in solving this problem, for only they have the leadership which is qualified by knowledge, experience and education. They are the ones to whom the nation, by licensure, has committed this problem and proposals for its solution.

The establishment of the Canadian Fund for Dental Education is one of the profession's major commitments to the nation's dental health. It was established to develop resources from dentists and private sources to help the profession help itself. Its growth has been sturdy but not as spectacular as one might wish. It is hard to understand, for example, why only 17 per cent of Canadian dentists made a contribution to the Fund last year. Every dentist has necessarily received his dental education from some institution which enables him to enjoy a full life of service to the public and a socially and economically satisfactory career. By every norm of appreciation no dentist can have any proper reason for not doing what he can to maintain and advance the stature of his profession and enable it to meet its obligations.

With the support it has received from the profession, the dental industry and other sources, the CFDE has already made major and magnificent contributions to dental education and to the advancement of the dental profession.

Since its inception the Fund has granted more than $180,000 for teacher-researcher training fellowship awards. In this program it has awarded 97 fellowships to 65 dentists, thus helping to alleviate one of the greatest shortages in dental manpower.

The Fund has made unrestricted grants of $59,000 to the dental schools from which most of Canada's dentists have graduated. It has awarded grants of $14,000 to help establish the Association of Canadian Faculties of Dentistry which monitors and advances Canadian dental education. It has established scholarships and bursaries for dental auxiliaries who are so vitally essential in meeting manpower needs. It has granted $17,814 for research and teaching conferences which have such long-range importance for the future development of the profession. It has recently made a grant to initiate an evaluation program for dental materials and dental devices in Canada.

There are many more contributions which the Fund has made to dentistry and dental education; but too few people know about them, and less people appreciate them.

But more—much more—needs to be done! Many important projects cannot be initiated or maintained unless support to the Fund is substantially increased by a contribution from *every* dentist and other sources.

Greatly increased funds are needed to enlarge the program for the training and procurement of full-time and part-time teachers; larger grants should be made on an unrestricted basis to all of the dental schools in order to meet urgent local needs which cannot be funded from other sources.

More scholarships and bursaries must be provided for all types of dental auxiliaries needed by the profession and almost all of the ongoing programs of the Fund need additional support. The Fund, too, should be placed in a position from which it can assist in the development of a design and program for continuing education, for the day is not far off when continuing education will be mandatory for all health professions.

This litany of needs and accomplishments could be prolonged almost endlessly, but if it has not achieved its purpose—greatly enlarged support for the Canadian Fund for Dental Education by everyone capable of any amount of support—it will, like many other litanies, go unheeded.

For all who love their profession and the essential role dentistry plays in the health and happiness of the people of Canada—it must not go unheeded!

# Le Fonds canadien pour l'enseignement dentaire: un défi à relever pour la profession

**Harold Hillenbrand, DDS**

*Le Dr Hillenbrand est le président de la Fédération Dentaire Internationale et membre du Conseil d'administration du Fonds canadien pour l'enseignement dentaire.*

Trois milles sept cents dentistes venus de 67 pays différents ont participé à la 59e session annuelle de la Fédération Dentaire Internationale à Munich en Allemagne, le 22 juin. Comme on peut s'en douter, plusieurs sujets ont été abordés au cours de cette réunion, mais comme un fil terni dans un brocart d'argent, on a ressenti ce malaise que traverse la profession, à savoir son incapacité présente dans tous les pays du monde à faire face aux besoins de santé dentaire au niveau national et individuel; peu importe d'ailleurs le niveau de développement de ces pays, au point de vue professionnel ou économique.

Aucun pays n'eut la témérité—ou peut-être la fantaisie—de proclamer qu'il y avait réussi, ou qu'il pouvait, dans un avenir rapproché, entrevoir une solution définitive à ce défi: une meilleure santé dentaire pour chaque citoyen. Cependant on ressentait partout ce grand espoir qu'enfin la santé dentaire était reconnue de plus en plus par le public, les dentistes eux-mêmes et les gouvernements comme une partie essentielle de la santé totale qui apporte un niveau de vie et de production beaucoup plus élevé dans chaque pays.

La plupart des pays étaient désireux de prendre note des conseils et de l'expérience d'autres pays, mais en même temps chacun s'accordait pour reconnaître qu'à chaque pays correspondait un programme précis, particulier, qui tiendrait compte de ses traditions et de ses aspirations.

A titre d'exemple, il y a 17 pays d'Afrique d'expression française et neuf d'expression anglaise qui ne possèdent pas d'association dentaire nationale. Dans certains de ces pays le rapport dentiste-population est de 1 à plusieurs centaines de milliers, ou même de millions. Les solutions que ces pays peuvent apporter à leurs problèmes ne peuvent pas se comparer à celles du Canada par exemple, ou à celles d'autres nations riches, puisque ces problèmes sont fondamentalement différents. Et pourtant le rapport dentiste-population au Canada est de 1 pour 2,884 en ce moment et ne passera qu'à 1 pour 2,573 en 1980 estime-t-on. Le rapport hygiéniste dentaire-dentiste est de 1 à 10. Et même avec cette force considérable dans le secteur dentaire, le Canada peut-il remplir ses obligations dans ce domaine sans un nouvel effort, soutenu, plus vigoureux encore?

Dans l'esprit d'un homme qui fut administrateur d'une grande association dentaire pour plus de deux décennies, et qui en tant que président de la Fédération Dentaire Internationale, et de nouveau membre du Conseil d'administration du Fonds canadien pour l'enseignement dentaire, dans l'esprit de cet homme donc qui possède une vue beaucoup plus large de la situation de la santé dentaire mondiale, la réponse malheureusement doit être "non" à moins que de nouvelles ressources et une nouvelle volonté pour relever ce défi n'apparaissent enfin.

Il n'est pas tout à fait vrai qu'il suffise de multiplier le nombre des dentistes pour mettre fin à tous les problèmes reliés à la santé dentaire.

Tout d'abord il faut six années après les études secondaires pour former un dentiste. Ce n'est qu'après huit ans qu'une nouvelle faculté dentaire commence à produire des dentistes. De plus il faut un renfort de professeurs pour former un personnel dentaire de plus en plus nombreux et ce manque de professeurs est peut-être le besoin le plus pressant aujourd'hui dans l'enseignement dentaire.

Selon l'Organisation mondiale de la santé, le Canada aura besoin d'au moins 200 professeurs à plein temps de plus d'ici 1978 si les 10 facultés dentaires veulent accorder des diplômes aux 633 dentistes qui en sortent chaque année.

Mais même avec la construction ou l'agrandissement des facultés dentaires, même avec des programmes mieux adaptés pour recruter des jeunes gens et des jeunes femmes au sein de la profession, et même avec les services d'un nombre accru de professeurs, je pense que le problème de la santé dentaire nationale au Canada—et dans la plupart des autres pays du monde, les USA y compris—reste entier. Le rapport du Comité Wells montre que l'on ne satisfait qu'un tiers des besoins de la population au Canada dans ce domaine.

Une population en expansion, un public mieux renseigné sur les besoins d'une protection complète de la santé, une prise de conscience sur la valeur que peut avoir la santé dentaire au cours d'une vie, le niveau des revenus personnels qui grimpent, et la reconnaissance du concept que la santé dentaire est un droit plus qu'un privilège, tout cela indique fort bien que la demande pour les services dentaires ira en s'accroissant rapidement. Nul n'a le droit d'ignorer ce défi, et il faut le relever. Mais comment?

Avec cette main-d'oeuvre presque stable que représentent les dentistes, comment feront-ils face à cette nouvelle demande?

Le dentiste doit travailler d'une façon plus productive en utilisant la technologie la plus avancée possible. On doit effectuer plus de recherches pour dépister et contrôler les maladies dentaires; à la main-d'oeuvre que représentent les dentistes doivent s'ajouter d'autres travailleurs qui offriront les mains supplémentaires dont on a besoin.

On arrivera à ce dernier point lorsqu'on aura formé les auxiliaires dentaires nécessaires et qu'on leur aura confié certaines tâches, sous la surveillance de la profession, afin de faire face aux besoins locaux et nationaux. La Commission royale sur les services de la santé, le Rapport Wells et le Ontario Committee on the Healing Arts ont bien fait ressortir le besoin urgent de former plus d'auxiliaires dentaires qualifiées, et le Canada a été le premier à établir d'importants programmes dans ce domaine.

Cette longue introduction n'a pas pour but de mettre en relief ce besoin national, il est trop connu. Son but plutôt est de montrer que la santé dentaire est un problème national important qui doit engager toutes les ressources de toutes les agences publiques et privées dans l'intérêt de la santé totale de la nation.

Le dentiste doit jouer un rôle privilégié dans la solution de ce problème, car lui seul a l'autorité que lui confère la connaissance, l'expérience et la science. C'est le seul à qui la nation, puisqu'elle l'a formé à cette fin, a confié ce problème et les solutions possibles pour le régler.

La création du Fonds canadien pour l'enseignement dentaire est l'un des engagements majeurs que la profession a pris vis-à-vis de la santé dentaire de

la nation. Ce fonds fut constitué pour développer des ressources provenant des dentistes et de sources privées afin d'aider la profession à s'aider elle-même. Sa croissance a été vigoureuse, mais moins spectaculaire qu'on pourrait l'espérer. Il est difficile de comprendre par exemple comment il se fait que seulement 17 p.c. des dentistes canadiens aient contribué à ce Fonds l'an dernier. Chaque dentiste a inévitablement reçu un enseignement dentaire d'une institution qui le rend apte aujourd'hui à jouir d'une vie vouée au service du public et d'une carrière avantageuse tant au point de vue social qu'économique. Considérant la chose de tous côtés, nul ne peut avoir de bonnes raisons de ne pas engager le maximum pour maintenir et faire progresser sa profession et la rendre ainsi apte à faire face à ses obligations.

Grâce à l'appui qu'il a reçu de la profession, de l'industrie dentaire et d'autres sources, le FCED a déjà contribué de façon significative à l'enseignement dentaire et à l'avancement de la profession de dentiste.

Depuis sa création, le Fonds a octroyé plus de $180,000 en bourses pour la formation de professeurs—chercheurs. Dans ce programme 97 bourses furent accordées à 65 dentistes; cette aide contrebalança les effets de la crise d'effectifs.

Le Fonds a accordé des octrois de $59,000 aux facultés dentaires qui forment la plupart des dentistes du Canada. Des montants totalisant $14,000 furent versés en vue de la création de l'Association des Facultés dentaires canadiennes qui guide et fait progresser l'enseignement dentaire canadien. Il a établi des bourses dont bénéficient les auxiliaires dentaires, si capitales à nos yeux, dans la crise d'effectifs que nous traversons. La somme de $17,814 a été versée pour organiser des conférences sur la recherche et l'enseignement qui aideront le développement futur de la profession. Récemment encore, il accordait un octroi en vue d'établir un programme d'évaluation des moyens techniques et matériels dont disposent les dentistes au Canada.

On pourrait encore allonger la liste de toutes les contributions que le Fonds a versé à l'enseignement et à l'art dentaire en général. Mais trop peu de gens en sont conscients, trop peu savent les apprécier.

Malgré cela on doit faire plus, beaucoup plus! De nombreux projets d'importance ne peuvent voir le jour, ne

*(Suite à la page 331)*

## Le Congrès national

### Assemblée de deux jours pour l'Académie de dentisterie restauratrice

L'Académie canadienne de dentisterie restauratrice donnera à ses membres et à ses invités l'occasion de se réunir à Ottawa, un peu avant le congrès national.

On a prévu une réunion d'affaires au Château Laurier le dimanche 26 septembre à 18 h. Le lundi et mardi 27 et 28 septembre, un programme scientifique aura lieu au Centre médical de la défense nationale. De plus, il y aura des tables cliniques le mardi après-midi au Château Laurier.

Parmi les animateurs de ce programme, on peut citer: R. A. Yuodelis, de Seattle, Washington; N. F. Boljkovac, de Hamilton, Ont; D. C. Smith, de Toronto; et Ronald Jones, de Montréal.

De plus, des dentistes canadiens présenteront une vingtaine d'autres conférences ainsi que des tables cliniques.

### Périodontiste de Philadelphie au congrès

L'Académie canadienne de périodontologie tiendra une assemblée de deux jours lors du congrès national à Ottawa, les vendredi et samedi 1er et 2 octobre. Toutes les séances se dérouleront à l'Hôtel Skyline.

Le Dr Walter Cohen, de Philadelphie, et A. H. Melcher, de Toronto, seront les principaux animateurs de cette réunion. Le Dr Cohen parlera des soins péridentaires le vendredi matin et le vendredi après-midi. Le Dr Melcher adressera la parole à l'Académie le samedi matin. Les sujets de son exposé seront: "Structure et fonction du parodonte" ainsi que "Régénération du parodonte".

On a réservé le samedi après-midi pour la réunion annuelle de l'Académie. Le déjeuner sera servi vendredi et samedi à l'Hôtel Skyline.

### Octroi du FCED pour les tables cliniques des étudiants

Selon M. E. "Bud" Bower, président du Conseil d'administration du Fonds canadien pour l'enseignement dentaire, la Compagnie L. D. Caulk Limitée et Dentsply Canada Limitée ont accordé un octroi spécial au Fonds afin de défrayer le coût de la présentation de tables cliniques données par des étudiants lors du congrès national.

Le doyen de chaque faculté dentaire a été invité à sélectionner un étudiant émérite qui présentera une table clinique et bénéficiera d'un voyage toutes dépenses payées à Ottawa. Il y aura compétition et les tables cliniques seront jugées dans deux catégories: (1) techniques et application en clinique, et (2) documentation scientifique et recherche. Le premier, deuxième et troisième prix sont respectivement de $150, $100 et $50 pour chacune des deux catégories précitées. Ce programme est administré sous l'égide du Conseil de l'enseignement de l'ADC.

"Caulk et Dentsply ont été de fidèles supporteurs du FCED (plus de $30,000) depuis sa création en 1962, et nous leur sommes extrêmement reconnaissants pour cette récente contribution qui, sans aucun doute, profitera à l'art dentaire au Canada", d'ajouter M. Bower.

### Réunions de promotion

Le groupe suivant a organisé une réunion de sa promotion au congrès national: il s'agit de la promotion 1956 de l'Université McGill. Communiquez avec F. R. Anfossie, 120 Holland Ave, Ottawa 3, ou D. J. Beauprie, 35 Alder Crescent, Deep River, Ont.

## L'Association

### Mme Isabel Brown quitte l'ADC

B. Isabel Brown, directrice du Bureau de recherches économiques et adjointe au directeur général de l'ADC a quitté ses fonctions le 30 juin à cause de charges familiales grandissantes. Mme Brown travaille avec l'Association depuis février 1960.

Pendant ces 10 années passées au sein du personnel de l'ADC, Mme Brown fut l'auteur de deux enquêtes sur la profession dentaire, en 1963 et en 1968. Elle prêta son concours à plusieurs conseils de l'ADC, au Bureau des Gouverneurs et à plusieurs membres corporatifs. Mme Brown a de plus joué un rôle clé dans la préparation et a rédaction de nombreaux mémoires pour l'Association, particulièrement celui qui fut envoyé à la Commission royale Hall sur les services de la santé.

Mme Isabel Brown

Diplômée de l'Université de Toronto avec un BA en Economie, Mme Brown a occupé plusieurs postes importants avant de se joindre à l'ADC. Elle a été nommée conférencière spéciale en dentisterie communautaire (économie dentaire) à la faculté dentaire de l'Université de Toronto. Mme Brown a aussi l'intention de poursuivre ses études en vue d'obtenir une maîtrise en économie. Elle continuera à servir l'ADC à titre d'expert conseil à temps partiel.

## Le Canada

### Succès de quatre dentistes étrangers à l'examen du BNED

Lors d'un récent examen préparé par le Bureau national d'examen dentaire à l'intention des dentistes étrangers, seulement quatre des 41 candidats ont réussi l'épreuve.

Représentant 23 pays différents, les 41 candidats devaient satisfaire aux mêmes qualifications minimums que l'on attend de leurs confrères canadiens. Ils ont dû subir une épreuve écrite, un examen avant la partie clinique, et un autre, en clinique celui-là d'une durée de cinq jours. Faisaient partie de l'examen clinique une obturation MOD à l'amalgame, une incrustation MOD, une aurification Classe V, les empreintes pour prothèses complètes haut et bas, le montage des modèles en articulateur anatomique, le modelage et l'essayage des prothèses.

Dix neuf candidats qui échouèrent à plus de deux sujets écrits ne purent se présenter aux tests imposés avant la partie clinique. Deux ne purent atteindre les qualifications minimums dans cette partie, et 16 des 20 candidats qui accédèrent à la dernière étape échouèrent à l'examen en clinique.

Ce premier examen organisé par le BNED pour le bénéfice des dentistes étrangers répond au voeu de toutes les provinces. Les candidats pouvaient écrire soit en anglais, soit en français, et le problème de la langue n'a paru incommoder personne au cours de l'examen.

### Réorganisation des services de santé au Québec

Le ministre des Affaires sociales du Québec, M. Claude Castonguay, a déposé au début de juillet à l'Assemblée nationale un projet de loi visant à décentraliser et réorganiser les services de santé et les services sociaux au Québec.

Le projet favorise la participation des citoyens à la gestion et à la clarification des responsabilités. Il prévoit notamment la création d'offices régionaux des affaires sociales qui serviront de lien entre la population, le ministre des Affaires sociales et les institutions régionales ou locales dispensant les services de santé ou des services sociaux.

Le projet de loi vise à regrouper les diverses institutions existantes en quatre catégories: les centres locaux de services communautaires, les centres hospitaliers, les centres de services sociaux et les centres d'accueil.

Les centres locaux de services communautaires seront appelés à recevoir les familles, qui requièrent des services de santé et des services sociaux, à les conseiller et à les diriger vers les institutions les plus aptes à leur venir en aide.

Les hôpitaux, désormais connus sous le nom de "centres hospitaliers", seront réorganisés selon une formule qui consacrera la participation à leur gestion de la population, des corps intermédiaires, des professionnels et du personnel qui constituent leur clientèle, leurs moyens d'action et leur soutien.

### Le Dr Dexter nommé au Conseil de la Santé de Nouvelle-Ecosse

C. E. Dexter, président de l'Association dentaire de la Nouvelle-Ecosse, a été nommé au poste de président du Conseil de la Santé de la Nouvelle-Ecosse qui vient d'être organisé récemment.

Le rôle de cet organisme est de conseiller et d'aider le ministre de la santé sur tout problème relié aux services, à l'accès et aux ressources de la province en matière de santé.

Le Ministre de la Santé, M. Scott MacNutt, a annoncé que le conseil serait directement impliqué dans la réorganisation des structures administratives qui régissent les services de santé de la province. De plus, tel que recommandé lors d'une résolution prise en Chambre durant la session du printemps, le conseil devra aussi "jeter un coup d'oeil sur les services dentaires offerts dans la province".

Le conseil a le pouvoir de réviser toute question à la simple demande du ministre, le devoir de susciter un intérêt accru dans l'amélioration des services, des possibilités offertes et des ressources en matière de santé, d'aider les organismes qui s'occupent de santé et de coordonner les activités des conseils de santé régionaux.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 juillet 1971:

*Fonds à revenu fixe* $11.733;

*Fonds d'action ordinaires* $23.960.

L'avoir total (valeur marchande) du régime se montait à $10,692.990.47.

Au cours du mois précédent, les transactions ont été les suivantes: achat 6,000 actions de Shell Canada A; vente 8,000 actions de Canadian Superior Oil, 6,500 actions de Dustbane Enterprises, 4,161 actions de Metromedia Inc, et 4,000 actions de Oshawa Wholesale A.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Chronique internationale

### L'assemblée de la FDI à Munich attire 5,930 personnes

Harold Hillenbrand, de Chicago, directeur général honoraire de l'Association Dentaire Américaine et administrateur du Fonds canadien pour l'enseignement dentaire, a été élu président de la Fédération Dentaire Internationale lors de la 59e assemblée annuelle de la FDI à Munich, en Allemagne, en juin dernier. Il remplace Jack Stork des Pays-Bas. Le Directeur général de l'ADC, W. G. McIntosh, de Toronto, garde son poste au Conseil de la FDI.

La Fédération a accueilli deux nouveaux organismes dentaires nationaux en son sein. Il s'agit de l'Association dentaire de la Barbade et de la Sociedad Odontológica Dominicana. Fut aussi ratifiée une nouvelle classification de membres-associés, maintenant appelés "secrétariats". Ceux-ci ne réunissent pas moins de 20 dentistes qui viennent de pays ou de régions qui ne possèdent pas d'associations dentaires. C'est le Secrétariat de santé dentaire d'Afrique qui le premier a été admis à titre de membre-associé de la FDI; il se compose de dentistes et de stomatologistes qui exercent leur profession dans 20 pays d'Afrique d'expression française. On s'attend à une demande semblable de la part du "Secretariat for Dental Health in Africa" qui regroupe les dentistes exerçant dans les pays d'Afrique d'expression anglaise.

La FDI compte maintenant 73 associations à titre de membre régulier, et une association non-régionale à titre de membre associé dans 66 pays, sans compter cinq membres affiliés. Quelques 5,930 personnes en tout ont participé à l'assemblée de Munich. Il y avait 67 pays représentés.

## Les organismes dentaires

### Assemblée annuelle de l'AFDC

Lors de son assemblée annuelle qui a en lieu les 15 et 16 juin, l'Association des facultés dentaires canadiennes a réélu S. Wah Leung, de l'Université de la Colombie-Britannique, au poste de

président, et D. V. Chaytor, de l'Université Dalhousie, au poste de secrétaire-trésorier.

J.-P. Lussier, de l'Université de Montréal, est président sortant, et W. H. Feasby, de l'Université Western Ontario, vice-président. Au Conseil exécutif, les autres membres sont: K. C. Bentley, de l'Université McGill et W. B. Love, de l'Université du Manitoba. Le Dr Love remplace R. V. Blackmore, de l'Université de l'Alberta.

W. G. Young, de l'Université Dalhousie, devient directeur du Comité de l'enseignement, et A. J. Gwinnett, de l'UWO, est nommé responsable du Comité de la recherche; il remplace A. M. Hunt, de l'Université de Toronto. Le responsable de l'assemblée de l'AFDC en 1972 est R. G. Burgess, de Toronto.

Le nouveau rédacteur du Bulletin de l'AFDC devient J. M. Gourley, de l'Université Dalhousie; il succède à R. G. Stephens, lui aussi de Dalhousie, qui s'absentera l'an prochain.

### Le Dr Durand à la tête des périodontistes du Québec

L'Association des Périodontistes du Québec à élu un nouveau conseil d'administration. Le Dr Claude Durand devient président, E. M. Hershenfield, vice-président, et Jean Turgeon, secrétaire-trésorier. Tous trois sont de Montréal.

### Le Dr Purves élu au BNED

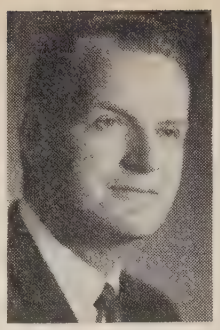
Le Dr J. D. Purves de Toronto succède à R. B. DeWare de Moncton, NB, au poste de président du Bureau national d'examen dentaire du Canada pour 1971-1973. D. B. Proctor est élu vice-président et régistraire. Les autres membres de l'exécutif sont J. M. Calvert d'Edmonton et Norman Layton de Halifax. Mme Juliette Matte d'Ottawa est nommée secrétaire exécutive.

## Les organismes dentaires

### Le Dr Archambault nommé régistraire adjoint au Collège du Québec

Le Dr Marcel Archambault, de Montréal, a été élu régistraire adjoint du Collège des Chirurgiens-Dentistes de la Province de Québec. Il succédera à Robert Le Blanc, qui occupe présentement ce poste, le ler juillet 1972.

Originaire de Fall River, au Massachusetts, le Dr Archambault obtint son diplôme en administration de l'Université de Boston en 1935. C'est à l'Université de Montréal qu'il se mérita son DDS en 1942.



J. D. Purves

Marcel Archambault

Le nouveau régistraire adjoint est co-fondateur de la Société d'endodontie de Montréal, ancien président et membre de l'American Academy of Oral Medicine, et diplômé du American Board of Endodontics.

Le Dr Archambault a fait partie du Bureau des Gouverneurs de l'Association Dentaire Canadienne. C'est en 1968 qu'il fut élu président du Collège du Québec.

## L'enseignement dentaire

### Le Dr Boyer est nommé directeur

Le Dr Guy Boyer, professeur-adjoint à la Faculté de chirurgie dentaire de l'Université de Montréal, vient d'être nommé directeur des cliniques.

Guy Boyer

Le Dr Boyer est né à Nicolet, Qué. Après des études au Collège St-Laurent, il obtient son baccalauréat ès arts en 1960. Admis à la Faculté de chirurgie dentaire la même année, il obtint son doctorat en chirurgie dentaire à l'Université de Montréal en 1964. Il fait un stage de deux ans à l'Université de Washington (Seattle) où il reçoit son diplôme de "Master of Science in Dentistry" in 1968 sous la direction du professeur Stibbs.

Le Dr Boyer est marié à Pierrette Courchesne et est père de trois enfants.

### Prix du Mémorial de Guerre gagnés par des étudiants de l'Université de Montréal

Le Conseil de l'enseignement de l'ADC a fait connaître le nom des étudiants qui se sont mérité un prix au concours du Mémorial de Guerre 1970-1971. Ce sont Alain Gervais, gagnant du premier prix de $200, et Joseph Michaelson, gagnant du deuxième prix de $100. Tous deux étudient à l'Université de Montréal.

Ces récompenses sont attribuées aux étudiants qui terminent la dernière année de leur cours dans une faculté dentaire canadienne, et qui soumettent le meilleur mémoire sur un sujet donné. Cette année le sujet était: "A Practical Approach to Preventive Dentistry; Une approche pratique à la dentisterie préventive." C'est en souvenir des dentistes canadiens morts au cours de la 1ère et de la 2nde guerre mondiale que l'on a institué ce concours.

### Le FCED octroie $38,400 en bourses

Douze dentistes se partageront la somme de $38,400 au titre de la formation professorale et de la recherche pour l'année académique 1971-1972. Cette nouvelle nous parvient de C. E. Peirce de Toronto qui est vice-président du FCED.

Pour 1971-1972 les récipiendaires de ces bourses sont:

**N. Brien,** de Montréal, 1ère année en prothèse dentaire à l'Université de l'Indiana;

**T. Duquette,** de Montréal, 1ère année en médecine et diagnostic buccal à l'Université de l'Indiana;

**C. H. Remise,** de Montréal, qui termine ses études en prothèse dentaire à l'Université de l'Indiana.

**P. W. Stutman,** de Montréal, 1ère année en dentisterie restauratrice à l'Université de Boston;

**J. D. Townsend,** de Montréal, 1ère année en dentisterie restauratrice à l'Université de Washington; et

**M. Werbitt,** de Montréal, 1ère année en périodontie à l'Université de Boston.

**L. K. Haglund** est l'un des quatre récipiendaires qui voit sa bourse renouvelée par le FCED pour une année supplémentaire. Il termine ses études en périodontie à l'Université de Boston.

Depuis 1964 le Fonds a octroyé plus de $180,000 en bourses, collaborant ainsi à la formation de professeurs et de chercheurs qui travailleront dans les facultés dentaires canadiennes. "A date, le FCED a accordé 98 bourses à 67 dentistes; 42 d'entre eux ont terminé leur formation, et enseignent maintenant ou font de la recherche au Canada," explique M. Peirce.

Cette année le Comité consultatif pour le choix des boursiers, présidé par le Dr W. H. Feasby de l'Université Western Ontario, a reçu 21 demandes pour l'obtention d'une bourse. Faisaient aussi partie de ce comité: R. C. Burgess et H. A. Hunter, de l'Université de Toronto, et Jean Nadeau, de l'Université de Montréal.

### Le FCED octroie $12,500 aux facultés dentaires

Chacune des 10 facultés dentaires canadiennes a reçu un octroi sans restriction de $1,250. C'est le Dr Henri Brouillet de Montréal, membre du conseil d'administration du Fonds canadien pour l'enseignement dentaire qui a annoncé cette nouvelle. Pour recevoir cet octroi chaque faculté n'a qu'à en faire la demande.

"Les doyens nous indiquent que ces octrois aident à parfaire l'enseignement de deux façons en général: en rendant possible, d'une part, des groupes d'étude au sein de la faculté, et d'autre part des cours de perfectionnement pour les membres du personnel," de dire le Dr Brouillet.

Depuis 1965 le Fonds a versé $59,000 en octrois sans aucune restriction aux facultés dentaires canadiennes.

### Le FCED offre $20,000 pour la reconnaissance des programmes post-universitaires

Le Fonds canadien pour l'enseignement dentaire a promis d'accorder la somme de $20,000 afin d'aider le Conseil de l'enseignement de l'ADC à établir un système de reconnaissance des programmes universitaires et post-universitaires d'enseignement en clinique. Cette nouvelle nous est communiquée par un membre du FCED, le Dr M. J. Lipkind, de Calgary.

"Les premières enquêtes effectuées auprès des facultés dentaires auront sûrement une grande portée puisqu'elles permettront d'établir les normes d'une reconnaissance officielle dont les principes seront semblables à ceux qu'on utilise aux USA," explique le Dr Lipkind. On peut dès maintenant penser qu'il existera une reconnaissance réciproque de ces cours post-universitaires, entre l'ADC et l'Association Dentaire Américaine, puisqu'elle existe déjà pour les programmes universitaires, a-t-il ajouté.

En annonçant cette nouvelle, le Dr Lipkind a précisé que le travail commencerait immédiatement et que toutes les facultés auront été sujettes à l'enquête d'ici le début de 1972.

### L'élargissement des facultés dentaires est en veilleuse

Les neuf facultés dentaires du Canada ont atteint en 1970-71 une capacité totale de 464 étudiants en première année, comparé à 453 l'année précédente. Mais les chiffres projetés pour les quatre prochaines années sont plus bas que ce que l'on avait prévu.

L'an dernier, les facultés espéraient augmenter les effectifs en première année à 600 étudiants et 260 étudiantes en hygiène dentaire d'ici 1973-74. Quatre facultés–celles de Dalhousie, de McGill, du Manitoba et de la Saskatchewan–ont déjà abaissé leurs estimations. Deux écoles d'hygiène dentaire ont été dans la même situation, il s'agit de celle de Dalhousie et de celle du Manitoba. De plus, trois universités–McGill, Western Ontario et Saskatchewan–ont retardé l'application de leurs programmes d'hygiène dentaire. Donc pour 1974-75 on estime à environ 580 étudiants en art dentaire et 210 étudiantes en hygiène dentaire le nombre total d'étudiants qui feront leur première année dans ces facultés.

On prévoit aussi que plus d'étudiants accèderont à une spécialité sanctionnée par un diplôme universitaire ou post-universitaire. On s'attend à ce que la demande pour les cours en spécialité (clinique) qui regroupent actuellement 40 étudiants, en comptent 60 d'ici 1974. On s'attend aussi à ce que les programmes universitaires et post-universitaires (non-cliniques) attirent 120 étudiants d'ici 1974 au lieu de 60 en ce moment.

### Premiers diplômés de Saskatchewan probablement en 1972

On verra peut-être les premiers dentistes recevoir leur diplôme de l'Université de la Saskatchewan en 1972–plus tôt que prévu–à cause du regroupement des trois dernières années académiques qui s'étendront maintenant sur une période continue d'environ 26 mois.

Normalement il faut six années académiques de huit mois chacune pour obtenir un diplôme dentaire de cette université. La première année est consacrée à des études préliminaires à la dentisterie, les autres à des études avant la partie clinique et en clinique. En regroupant les trois dernières années du cours, l'université pourra préparer ses étudiants en un peu plus de cinq ans.

Le premier groupe de 10 étudiants fit son entrée au Collège dentaire à l'automne de 1968, une année après leur cours pré-dentaire. En avril dernier ils ont terminé leur troisième année académique, et après une courte pause estivale, ils continueront leurs études de façon à terminer la dernière année académique pour la collation des grades à l'automne de 1972.

Le doyen de la faculté, le Dr K. J. Paynter, explique que ce regroupement des trois dernières années académiques sur une période continue offre certains avantages. Les étudiants termineront huit mois plus tôt que prévu, et la faculté dentaire pour sa part fonctionnera d'une façon beaucoup plus productive, étant ouverte à l'année.

## L'économie

### L'Ontario vérifiera la comptabilité des médecins

L'Ontario a l'intention de faire voter une loi éliminant les dépassements d'honoraires réclamés par les médecins, et d'établir des mesures strictes afin de maintenir l'ordre dans les comptes médicaux.

Les médecins adhérant au tarif d'honoraires de l'Association Médicale de l'Ontario peuvent en ce moment envoyer leur compte directement au gouvernement et recevoir ainsi 90 p.c. de leurs honoraires, et réclamer les autres 10 p.c. de leurs patients.

Le nouveau système offrira deux possibilités aux médecins. S'ils veulent recevoir leur argent directement du gouvernement, ils devront se contenter des 90 p.c. des honoraires fixés par l'AMO. Ils n'auront pas la possibilité de réclamer quoi que ce soit, en plus, du patient.

Avec l'autre solution, ils pourront réclamer directement du patient le montant qu'ils établiront. Le patient paiera le docteur et réclamera ensuite du gouvernement 90 p.c. des honoraires fixés par l'AMO.

D'ici le 1er novembre tous les médecins devront choisir le système qui leur convient le mieux. Une fois choisi, ils devront s'y astreindre pour toutes leurs activités.

Une autre mesure importante prise par le gouvernement permettrait à la régie de l'assurance-maladie de vérifier les comptes médicaux sans qu'il y ait toutefois infraction du secret professionnel. Un comité de revision médicale sera créé avec un corps d'inspecteurs nommés par le ministre de la santé d'après une liste de candidats désignés par le Collège des médecins de l'Ontario. Le comité aurait pour rôle d'évaluer les réclamations soumises au gouvernement suivant le régime de l'assurance-maladie de l'Ontario.

Un projet de loi précédant avait prévu la création d'un directeur du bureau de réclamations qui aurait eu

l'autorité absolue d'évaluer les réclamations et de nommer les inspecteurs.

Ce premier projet de loi, qui avait été présenté le 24 juin, avait déclenché la furie de la profession médicale. Les médecins craignaient les infractions du secret professionnel et l'examen de leurs livres sans restriction aucune.

Le ministre de la santé, M. A. B. R. Lawrence, en présentant les amendements au projet de loi, a souligné que toutes les inspections seraient sous le contrôle du comité de revision, qui donnerait ses instructions au directeur.

### Modifications à la Loi médicale

Le vendredi 18 juin, le Lieutenant-gouverneur sanctionnait la loi numéro 40 modifiant la Loi médicale de la province de Québec.

Les modifications apportées ont pour objet de permettre à tout médecin qui n'est pas citoyen canadien et qui ne remplit pas les conditions fixées par la Loi de l'admission à l'étude et à l'exercice de professions, mais qui détient un enregistrement temporaire à titre de professeur dans une faculté de médecine visée par la Loi médicale, d'exercer la médecine pendant la durée de son enregistrement, aux conditions déterminées par le Bureau provincial de médecine.

L'enregistrement temporaire d'un tel médecin ne peut excéder un an à moins d'autorisation spéciale du gouvernement lorsque l'intérêt public le requiert. La loi numéro 40 permet également au Bureau provincial de médecine de reconnaître tout diplôme en médecine délivré en dehors du Québec comme équivalent à un diplôme de docteur en médecine délivré au Québec.

Les médecins ainsi autorisés par le Bureau provincial de médecine à exercer leur profession au Québec deviennent donc, pour les fins de l'assurance-maladie, des professionnels reconnus comme ayant droit au remboursement de leurs honoraires dans les cadres du régime d'assurance-maladie et la Régie se comportera à leur égard comme s'ils étaient des médecins québécois, pendant la durée de leur enregistrement temporaire.

### Le Québec reconnaît deux nouvelles spécialités

Le Collège des Chirurgiens-Dentistes du Québec a ajouté l'endodontie et la pédodontie à sa liste de spécialités reconnues.

Ceci porte à sept le nombre de spécialités reconnues par le Collège. Les autres sont la chirurgie buccale, l'orthodontie, la prothèse dentaire, la périodontie et l'hygiène dentaire publique.

### Nouveau régime d'assurances en Alberta

Depuis le 1er août le personnel de l'Université de l'Alberta bénéficie d'un système conjoint d'assurance, couvrant les soins dentaires. Environ 1,500 membres du personnel universitaire, ainsi que leurs familles–environ 5,000 personnes en tout–seront désormais protégés par un accord signé entre l'administration de l'université, l'association du personnel enseignant de l'Université de l'Alberta et la Corporation des services dentaires de l'Alberta.

Les avantages de ce plan–qui entre en vigueur dès le versement de la cotisation–comprennent le diagnostic, les services préventifs, tous les soins péridentaires et endodontiques ainsi que les services de restauration, à savoir les obturations à l'amalgame et aux matières synthétiques. Le plan couvre aussi les incrustations, lorsqu'une dent ne peut être autrement réparée, ainsi que les couronnes et les ponts si aucune autre forme de restauration ne peut être appliquée.

Un grand nombre de services de prothèses sont couverts, ainsi que les soins chirurgicaux et pédodontiques. Le régime offre aussi une clause applicable à l'orthodontie avec bénéfices basés sur 50 p.c. de l'honoraire fixé par l'Association dentaire de l'Alberta, et avec un maximum de $500 par individu.

Le dentiste pourra exiger ses honoraires réguliers, et les patients se verront rembourser 75 p.c. de l'honoraire moyen établi par l'Association dentaire de l'Alberta.

## Le matériel dentaire

### Bristol-Myers entre dans le domaine du matériel dentaire

La compagnie Pelton & Crane de Charlotte, Caroline du Nord s'est fusionnée à la compagnie Bristol-Myers le 1er juillet, nous annonce-t-on.

Cette firme qui se spécialise depuis 71 ans dans la fabrication de matériel dentaire poursuivra ses activités sous la direction des Laboratoires Bristol de Syracuse, New York.

Pelton & Crane est un fournisseur bien connu des médecins et des dentistes. Cette compagnie se spécialise dans l'éclairage, les autoclaves et les stérilisateurs, les sèchoirs, les compresseurs et les évacuateurs à air.

## La fluoration

### Verdict des allergistes: "aucune preuve" contre le fluorure

Selon l'American Academy of Allergy, aucune preuve n'existe à l'effet que la fluoration de l'eau potable puisse causer des réactions allergiques.

Ce verdict est le résultat d'études menées par onze médecins renommés qui font partie du comité exécutif de l'académie.

L'enquête comprenait l'étude de tous les cas soumis de réactions allergiques qui étaient censés provenir de la fluoration de l'eau potable. Parmi les symptômes qui revenaient souvent, on put noter: le vomissement, les douleurs abdominales, les maux de tête, le scotome, les changements de personnalité, la faiblesse musculaire, les engourdissements douloureux des doigts et des orteils, les douleurs dans les articulations, les migraines, la bouche sèche, les ulcères de la bouche, les convulsions, les affectations mentales, les colites, les hémorrhagies du bassin, l'urticaire, les congestions nasales, les éruptions sur la peau, les embarras épigastriques et l'hématémèse.

Le comité a déclaré qu'aucune preuve, d'ordre scientifique ou clinique, ne permettait d'assurer que ces symptômes provenaient de la consommation d'eau potable fluorée.

### Châteauguay est fluorée

L'eau potable des municipalités de Châteauguay et de Châteauguay Centre est fluorée. La nouvelle a été annoncée par le maire de Châteauguay, M. Joseph Laberge. Le coût de l'installation des machines a été payé grâce à un octroi spécial du gouvernement provincial pour encourager la fluoration.

Le maire Laberge a déclaré que bien qu'un avis avait déjà été publié pour avertir la population des débuts de la fluoration, peu de gens semblaient le savoir. Il avait ensuite envoyé des lettres aux dentistes et aux médecins pour les aviser.

### Eau fluorée pour 92 millions d'Américains

Selon des rapports émanant du Service de la Santé publique des E-U, 92 millions d'Américains bénéficiaient des avantages de l'eau fluorée à la fin de l'année 1970. Ce total comprend 83,752,771 personnes habitant des municipalités ayant adopté la fluoration, et 8.5 millions qui disposaient d'une eau fluorée naturellement.

Des projets de loi prônant la fluoration à la grandeur de l'état furent défaits en Georgie, en Oregon et au Montana. Le Kansas, pour sa part, a introduit dans sa législature un projet qui recommande la fluoration pour tous les centres dépassant 500 habitants.

## La recherche

### L'Association des facultés publie un livret sur la recherche

L'Association des facultés dentaires canadiennes vient de publier une brochure intitulée "Symposium sur la recherche et l'enseignement dentaire".

On trouve dans ce livret les travaux présentés à la Sixième conférence biennale sur la recherche dentaire canadienne qui s'est déroulée conjointement avec la seconde assemblée générale de l'AFDC à Vancouver en juin 1970.

Pour de plus amples renseignements, veuillez écrire à D. V. Chaytor, Secrétaire-trésorier, Association des facultés dentaires canadiennes, 5981 University Ave, Halifax, NE.

### On recommande la prudence dans l'emploi de l'halothane

Le 29 avril, un jury du coroner à Toronto a prononcé une mise en garde contre l'emploi répété de l'anesthésique halothane en moins de trois mois chez le même patient.

Le jury a qualifié l'halothane comme étant "l'un des meilleurs anesthésiques généraux actuellement employés", mais a donné raison aux mémorandums rédigés en décembre dernier par H.B. Cotnam, Coroner général de l'Ontario, et en avril dernier par l'Association médicale de l'Ontario, qui mettaient en garde contre l'emploi répété de l'halothane.

La recommandation du jury fait suite à une enquête dans le cas d'un malade qui avait subi deux opérations mineures au pied, le 21 décembre et le 1er février. L'halothane fut employé dans les deux cas. Le malade mourut le 20 février par suite de la "destruction massive de cellules du foie, conforme à l'empoisonnement par l'halothane".

### Il faut conserver les molaires supérieures dans la parodontose des jeunes

Des études effectuées au US National Institute of Dental Research indiquent que l'extraction des molaires supérieures devrait être évitée dans le traitement de la parodontose chez les jeunes.

Le problème est depuis longtemps débattu: vaut-il mieux extraire les molaires supérieures menacées par la parodontose ou dispenser un traitement long et coûteux?

Les résultats de chacun des deux procédés ont été illustrés à l'aide de clichés radiographiques pris pendant plusieurs années. Hormis la perte osseuse et l'expansion de la cavité du sinus maxillaire qui se produit avec l'âge et sans rapport avec la maladie ou le traitement, les clichés révèlent que les modifications du sinus et du procès alvéolaire qui soutient les dents sont beaucoup plus importantes si les molaires, et en particulier les premières molaires supérieures, ont été extraites à un jeune âge.

Après une première année de régéneration et de croissance, la perte de l'os alvéolaire devient souvent si rapide et si grave chez les adolescents et les jeunes adultes, que les racines d'une molaire voisine saine risquent à leur tour d'être menacées au bout de quelques années. Après 40 ans, les modifications osseuses deviennent beaucoup plus lentes.

Lorsque les affections du parodonte se manifestent au cours de l'adolescence ou tôt dans l'enfance, elles comportent le danger, dans le maxillaire supérieur, d'un amincissement de l'os et d'un agrandissement simultané de la cavité du sinus maxillaire. Le danger d'infiltration de produits toxiques de la région alvéolaire atteinte à travers le cortex, jusque dans le sinus, pourrait rendre le traitement de la dent concernée presque impossible. Les chercheurs recommandent donc de ne négliger aucun effort afin de diagnostiquer et de traiter la parodontose à son début et de conserver ainsi les dents et l'intégrité de la mâchoire.

### Avis de l'ADA sur les substances fluorées

Le Conseil de la thérapeutique dentaire de l'Association Dentaire Américaine a donné son avis sur la tendance récente d'ajouter du fluorure aux matériaux dentaires, y compris les substances pour restauration et pour sceller les puits et fissures, ainsi que les ciments dentaires.

Le conseil insiste sur le fait que le taux élevé de fluorure dans les restaurations au silicate empêche dans bien des cas la formation d'autres caries marginales dans les dents restaurées avec ces produits. Sur 20,000 restaurations pratiquées sur des recrues militaires du Great Lakes Naval Training Station, environ 12 p.c. des amalgames exigeaient d'être remplacés, mais seulement 3 p.c. des restaurations au silicate l'exigeaient. Ces effets semblant concluant, on a décidé d'ajouter des fluorures aux résines polymérisables pour obturation. Cependant, comme le conseil le fait remarquer lui-même, il n'y a aucune preuve clinique permettant d'assurer que les résultats seront similaires à ceux obtenus avec les silicates, puisque le dégagement de fluorure peut ne pas être du tout du même genre.

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*(Suite de la page 325)*

Le Fonds canadien
pour l'enseignement dentaire

peuvent être maintenus sans un appui financier massif que le Fonds attend de *chaque* dentiste et de toute autre source.

On a besoin de fonds pour étendre le programme de formation de nouveaux professeurs à temps complet ou partiel; on a besoin de fonds plus importants encore pour subventionner toutes les facultés dentaires qui ne peuvent trouver d'octrois ailleurs.

On doit offrir plus de bourses aux auxiliaires dentaires requises par la profession et tous les programmes en cours nécessitent un appui financier plus considérable. Le Fonds devrait aussi être en mesure d'assurer le développement d'un projet d'éducation permanente, car il n'est pas loin le jour où l'éducation permanente sera obligatoire pour toutes les professions de la santé.

Cette litanie de nos besoins et de nos réalisations pourrait se poursuivre à l'infini, mais si elle n'a pas atteint son objectif — un appui financier massif que le Fonds espère obtenir de la part de chaque individu capable de verser une contribution, aussi modeste qu'elle soit — cette litanie donc, comme bien d'autres restera vaine.

A tous ceux qui aiment leur profession, à tous ceux qui considèrent que la dentisterie joue un rôle important dans la santé et le bonheur du peuple canadien, je dis qu'il faut agir.

# Dentistry in the news

## National Convention

### Two day meeting for restorative dentistry group

The Canadian Academy of Restorative Dentistry will hold a meeting for its members and guests in Ottawa preceding the CDA national convention.

A business meeting is scheduled at the Chateau Laurier Hotel on Sunday, September 26 at 6:00 p.m. The scientific meeting on Monday and on Tuesday morning, September 27-28, is at the National Defence Medical Centre. Table clinics will be presented on Tuesday afternoon at the Chateau Laurier Hotel.

Essayists appearing on the program include R. A. Yuodelis, Seattle, Washington; N. F. Boljkovac, Hamilton, Ont; D. C. Smith, Toronto; and Ronald Jones, Montreal.

Twenty other clinical lectures and table clinics will be presented by Canadian dentists.

### Philadelphian to address periodontists

A two day meeting is in store for the Canadian Academy of Periodontology during the national convention at Ottawa, Friday and Saturday, October 1-2. All sessions will be held at the Skyline Hotel.

D. Walter Cohen, Philadelphia, and A. H. Melcher, Toronto, are the principal essayists. Doctor Cohen will speak about "Periodontal Therapy" on Friday morning and afternoon. Doctor Melcher will address the Academy on Saturday morning. His topics are "The Structure and Function of the Periodontium" and "The Process of Repair in the Periodontium".

Saturday afternoon has been set aside for the annual business meeting. There are also luncheons on Friday and Saturday at the Skyline Hotel.

## Canada and the Provinces

### Ontario police seeks identity of Huntsville victim

The Ontario Provincial Police has asked for assistance in identifying the remains of a white male found hanging by the neck from a tree near Huntsville, Ont, in July. The victim, 25-27 years of age, was over six feet tall. He had light brown neck length hair and wore size 11 half Wellington type shoes.

Reconstructed dentition of the Huntsville, Ont, death victim.

The dental care, both on the part of the patient and dentist, appears to have been good and suggests the victim may have come from a reasonably affluent milieu. All missing teeth, except the upper second bicuspids, were lost through dropping from their sockets. Only three teeth were recovered. The lower third molars were probably suppressed and covered with gum tissue. Other molars showed evidence of hypoplasia and wear. The lower right first molar had a recent (one year or more) disto-occusal amalgam restoration.

Readers who have information that might aid the investigation are asked to contact Chief Inspector D. D. Higley, Ontario Provincial Police, 125 Lakeshore Blvd East, Toronto 2, Ont.

## International Items

### Munich FDI meeting draws 5,930

Harold Hillenbrand, Chicago, who is executive director emeritus of the American Dental Association and also a trustee of the Canadian Fund for Dental Education, was installed as president of the Fédération Dentaire Internationale at the FDI's 59th annual session in Munich, Germany, last June. He succeeds Jack Stork of the Netherlands. CDA Executive Director W. G. McIntosh, Toronto, continues as a member of the FDI Council.

Two new national dental organizations were admitted to membership in the Federation. They are the Barbados Dental Association and the Sociedad Odontológica Dominicana. Also approved was a new classification of associate member associations, designated "secretariats." These consist of

FDI President Harold Hillenbrand

CDA Executive Director W. G. McIntosh was an attentive participant at the 59th annual session of the Council of the Fédération Dentaire Internationale in Munich, Germany, June 16-22. He is flanked by W. A. T. Grainger (l), Sydney, Australia, and T. Aggeryd, Katrineholm, Sweden.

not less than 20 dentists from countries in which no national dental associations exist. The FDI approved the first application for this type of membership from the Secrétariat de Santé Dentaire d'Afrique whose members are individual dentists and stomatologists practising in 20 French-speaking African countries. A similar application is expected from the Secretariat for Dental Health in Africa which groups dentists in the English-speaking African countries.

The FDI now has 73 regular member associations and one non-regional associate member association in 66 countries in addition to five affiliate members.

The total registration for the Munich meeting was 5,930. The number of countries represented was 67.

Filip Cappa

### Preventive dentistry group elects Ontario dentist

Filip Cappa of London, Ont, was elected secretary at the meeting of the American Society for Preventive Dentistry in Chicago, June 6-9. Doctor Cappa, a general practitioner, is also editor of the *Journal of the Ontario Dental Association.*

The ASPD meeting, which drew 6,187 delegates, was rated "an outstanding success" by Doctor Cappa. The next convention will be held in Chicago July 23-26, 1972.

### Toronto Academy to sponsor Mexican congress tour

The Academy of Dentistry, Toronto, will sponsor a group tour to Mexico, site of the 15th World Dental Congress of the Fédération Dentaire Internationale, it has been announced.

Highlights of the tour, slated between October 22 and November 4, 1972, include stops in Mexico City for the FDI Congress (October 22-27), in Merida for visits to the Mayan ruins at Chichen Itza and Uxmal, and a visit to Mexico's Caribbean island of Cozmuel.

For further details, visit the CDA display stand at the Chateau Laurier Hotel, Ottawa, during the national convention; or write to M. A. Kamienski, Academy of Dentistry, 230 St. George St, Toronto 180, Ont.

### Forensic dentistry course in Washington

Washington, DC, will be the site of a course in forensic dentistry, October 4-8 at the Armed Forces Institute of Pathology.

Among the lecture subjects will be recent advances in identification, dental identification in mass disasters, the relationship between forensic dentistry and the Federal Bureau of Investigation, study of bite marks, and professional liability. There will also be laboratory sessions on identification of human remains by comparison of dental records and a mock trial depicting the role of the dentist as an expert witness or defendant.

Dentists wishing to attend should write to The Director, attention **MEDEMDE** Armed Forces Institute of Pathology, Washington, DC 20305, USA.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on July 31, 1971:

*Fixed Income Fund* $11.733;

*Common Stock Fund* $23.960.

Total assets (market value) of the plan were $10,692,990.47.

The following portfolio purchase and sales occurred during the preceding month: bought 6,000 shares Shell Canada A; sold 8,000 shares Canadian Superior Oil, 6,500 shares Dustbane Enterprises, 4,161 shares Metromedia Inc, and 4,000 shares Oshawa Wholesale A.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Dental Organizations

### Essex County dentists headed by Doctor Kupsov

A. H. Kupsov, Windsor, has been elected president of the Essex County Dental Society, succeeding M. A. Hakem, also of Windsor. J. B. Recker of Belle River is vice-president. Windsor dentists A. A. Stoyshin and W. W. Meloche were

named treasurer and secretary respectively.

### Doctor Archambault named Quebec college assistant registrar

Marcel Archambault, Montreal, has been elected assistant registrar of the College of Dental Surgeons of the Province of Quebec. He will succeed Robert Le Blanc, the present registrar, on July 1, 1972.

A native of Fall River, Massachusetts, Doctor Archambault graduated in business administration from Boston University in 1935. He earned a DDS from the Université de Montréal in 1942.

The new assistant registrar is a co-founder of the Montreal Endodontia Society, a past president and fellow of the American Academy of Oral Medicine, and a diplomate of the American Board of Endodontics. Doctor Archambault was elected president of the Quebec college in 1968.

Marcel Archambault

J. A. Hargreaves

## Dental Education

### Schools' expansion hopes dim

Canada's nine dental schools had a total first year capacity of 464 students in 1970-71, up from 453 the previous year. But the projected capacity figures for the next four years are somewhat lower than reported previously.

Last year the schools hoped to raise their first year capacity to 600 dental students and 260 dental hygiene students by 1973-74. Four schools–Dalhousie, McGill, Saskatchewan and Manitoba – have now lowered their estimates, as have two dental hygiene schools – Dalhousie and Manitoba. In addition, three universities – McGill, Western Ontario and Saskatchewan – have delayed plans for dental hygiene programs. Consequently, the first year capacity is now expected to be about 580 dental students and 210 dental hygiene students by 1974-75.

Increases in specialty, graduate and postgraduate programs are also foreseen. Specialty (clinical) programs which now have a capacity of about 40 are likely to expand to 60 by 1974. Graduate and postgraduate (non-clinical) programs are expected to increase from their present capacity of about 60 to 120 by 1974.

### New appointment at Toronto

J. A. Hargreaves has accepted an appointment as professor in the Department of Paedodontics at the Faculty of Dentistry, University of Toronto.

Doctor Hargreaves comes to Toronto from Edinburgh where he was head of the Department of Children's Dentistry at the University of Edinburgh Dental School. He has been active in research and had teaching experience in dental schools in England, Sweden and Scotland.

### ACFD holds annual meeting

S. Wah Leung, University of British Columbia, was re-elected president and D. V. Chaytor, Dalhousie University, secretary-treasurer when the Association of Canadian Faculties of Dentistry held its annual meeting June 15-16. J.-P. Lussier, Université de Montréal, is past president and W. H. Feasby, University of Western Ontario, is vice-president. Other members of the Executive Council are K. C. Bentley, McGill University, and W. B. Love, University of Manitoba. Doctor Love was elected to replace R. V. Blackmore, University of Alberta.

Chairman of the Education Committee is W. G. Young, Dalhousie University. A. J. Gwinnett, UWO, was named chairman of the Research Committee to replace A. M. Hunt, University of Toronto. Appointed general chairman of the 1972 meeting of the ACFD was R. G. Burgess, Toronto.

The new editor of the ACFD *Newsletter* is J. M. Gourley, Dalhousie University, succeeding R. G. Stephens, also of Dalhousie, who will be on a leave of absence next year.

### 1972 aptitude test brochures available

The Canadian Dental Association has published new brochures in English and French giving details of the 1972 CDA Dental Aptitude Test Program for applicants to first year dental classes at Canadian dental schools. The brochures give information about predental requirements, the professional course of study, the DAT program, test dates (January 7-8 and March 24-25, 1972), application procedure, test centres, test reports and fees. The program is supervised by the CDA Council on Education.

Dental aptitude tests which are required or recommended by every Canadian dental school help to predict an applicant's probable success in the dental curriculum. Test results are considered with all other pertinent information in determining the applicant's admission to a dental school.

Copies of the DAT brochures may be obtained by writing to Dental Aptitude Test Program, Canadian Dental Association, 234 St. George St, Toronto 180, Ont.

## Economics

### Ontario to audit physicians' accounts

Ontario intends to pass a law eliminnating double billing by physicians and establishing tough measures to police medical accounts.

Physicians adhering to the Ontario Medical Association fee schedule can now bill the government directly to collect 90 per cent of their fees and bill patients for the other 10 per cent.

Under the new system, they will have two options. If they want to receive their money directly from the government they will have to be content with collecting 90 per cent of the fees set by the OMA. They will not be permitted to charge the patient anything extra.

Or they will be able to bill their patients directly for any amount they choose. The patients will pay the doctor and can collect 90 per cent of the OMA fee from the government.

All physicians must decide by November 1 how they want to collect their fees. Once they choose an option it will apply to their entire practice.

The other major feature of the new legislation would enable the government's medicare scheme to audit medical billings without breaching professional confidentiality. It would create a medical review committee with a corps of inspectors appointed by the health minister from a list of nominees submitted by the College of Physicians and Surgeons of Ontario. The role of the committee would be to assess claims submitted to the province under Ontario's medicare plan.

Earlier draft legislation had provided for a director of a claims board with powers to assess claims and appoint inspectors.

This original legislation, introduced on June 24, caused furore in the medical profession. Physicians feared

breaches of confidentiality and unrestrained examination of their books.

Introducing the amendments, Health Minister A. B. R. Lawrence stressed that all inspections would be under the direction of the review committee, which would instruct the director.

### Quebec college names two new specialties

The College of Dental Surgeons of the Province of Quebec has added endodontics and paedodontics to its list of recognized specialties.

This brings the number of specialties recognized by the college to seven. The others are oral surgery, orthodontics, prosthodontics, periodontics and dental public health.

## Fluoridation

### Allergists' verdict: "no evidence" against fluoride

There is no evidence that fluorides in community water supplies cause allergic reactions, according to the American Academy of Allergy.

The verdict is based on a study undertaken by the academy's executive committee of 11 distinguished physicians.

The study included a review of all reported instances of allergic reactions suspected to be caused by fluoride in water supplies. The variety of reported symptoms included vomiting, abdominal pain, headaches, scotomata, personality change, muscular weakness, painful numbness in extremities, joint pain, migraine headaches, dryness in the mouth, oral ulcers, convulsions, mental deterioration, colitis, pelvic haemorrhages, urticaria, nasal congestion, skin rashes, epigastric distress, and haematemesis.

The committee found no scientific or clinical evidence that any of these symptoms resulted from fluoride.

## Research

### Briton tells how to handle perforating wounds of the palate in children

It is wrong to suture a perforating wound of the palate in children, according to a British dental scientist. This must be avoided because the child is usually frightened and inadequately prepared, according to B. S. Crawford, of Sheffield, England.

Writing in the July issue of *Dental Abstracts* published by the American Dental Association, Doctor Crawford said a perforating wound of the palate usually results from an accident in which a child falls with a stick in the mouth.

The end of the stick impinges on the hard palate on which it slides, causing a laceration down to the bone. At the posterior edge of the bony palate the remaining force is applied to the soft palate which is usually perforated and sometimes partly torn from its bony attachment.

The wound may be a clean-cut perforation but often is extensive and ragged, finally opening into the nasal cavity.

Initially, bleeding is brisk but usually it stops spontaneously, and total blood loss is insignificant. If the palatine artery is torn, however, bleeding may be torrential, he said.

Doctor Crawford noted that immediate suturing should be avoided because most of these wounds heal perfectly if left alone and sutures may cause further damage and delay healing.

The prognosis is so good that it is often unnecessary to admit the patient to the hospital, and the use of antibiotics is not indicated as a routine measure, he said.

In the rare event where the palatine artery has been torn, continuous digital pressure on the bleeding point and the use of posture and suction to clear the airway are advised until an anaesthetic can be given, he stated.

Intubation can be difficult because of the amount of bleeding; instead, the simultaneous use of two sutures is helpful.

The proximal end of the palatine artery is grasped in straight mosquito forceps. The procedure is similar to a cleft palate operation, Doctor Crawford explained.

The point of the forceps is gently worked into the adjacent palatine foramen, and the vessel is twisted off and allowed to retract into the bony canal, he added.

### ADA council comments on fluoride-containing materials

The recent trend of adding fluorides to dental materials, including restorative materials, pit and fissure sealants and dental cements, has received comment from the American Dental Association's Council on Dental Therapeutics.

The council points out that the high level of fluoride in silicate restorations results in a marked resistance to marginal caries in teeth restored with these products. Of 20,000 restorations in mouths of recruits at the Great Lakes Naval Training Station, approximately 12 per cent of the amalgams required replacement because of recurrent caries and only 3 per cent of the silicate restorations needed replacement. Because of this observed effect, fluorides have been added to restorative resin polymers. However, the council points out, there is no clinical evidence that the results will be similar to those observed with silicates since the release of fluoride may not follow a similar pattern.

### Dental cements could replace orthodontic bands

Indiana University dental scientists have begun clinical trials to determine how well improved carboxylate cements will bond orthodontic brackets directly to teeth under ordinary usage. Laboratory tests have already shown that a typical carboxylate cement adheres so much better to teeth than traditional zinc phosphate cement that it may prevent leakage around fillings and make orthodontic bands practically obsolete.

The carboxylate cement, a mixture of modified zinc oxide powder with polyacrylic acid dissolved in water, is not as strong under compression as zinc phosphate, but this type of strength may not be so important as tensile strength for bonding. The tensile strength of the two types of cement is comparable.

The first great advantage of the plastic cement is its greater adhesion to enamel and dentine. Its bond to enamel is especially good.

A second advantage is that polycarboxylate irritates dental pulp very little while zinc phosphate requires a liner where little dentine remains.

Finally, the plastic's close adhesion to tooth material should prevent mouth fluids from seeping around and undermining fillings. Shaping gold inlays to provide a mechanical lock with the cement may compensate for its poorer adhesion to gold. However, seepage between gold and cement should be less destructive than seepage in the tooth itself.

The Indiana team has already learned how to remove the cement after it is no longer needed. A quick twist of a sharp instrument placed under one corner of an appliance will snap most of it off, and the remainder can be polished away in a routine cleaning.

### Guatemalan diet calcifies dental plaque, reduces decay

A study in two Guatemalan villages has shown that less tooth decay occurs when dental deposits are mineralized.

Investigators from the Massachusetts Institute of Technology made a nutritional and dental survey of 164 primary school children in the two communities to determine factors that might account for an apparent relation between the large number of calcified deposits on teeth and the scarcity of dental decay found in both ancient Mexican skulls and in some modern Indians.

Statistical analyses were made of the occurrence of mineralized deposits (calculus and gritty plaque) on the lingual surfaces of upper, and buccal surfaces of lower, first molars; and the occurrence of decay in grooves and pits on the same sides of these teeth. The investigators found that the absence of decay was closely associated with highly mineralized deposits.

The diets contained about the same amount of sugar, and both were deficient in milk and milk products. One village lived chiefly on native Indian foods, especially maize in the form of tortillas which are rich in calcium and phosphorus, whereas the westernized villagers ate much more wheat bread which provides less calcium and phosphorus.

The data suggest that when there is enough calcium and phosphorus available to mineralize local deposits, the cariogenic effects of bacterial products found in plaque are reduced.

### Faculties association publishes research booklet

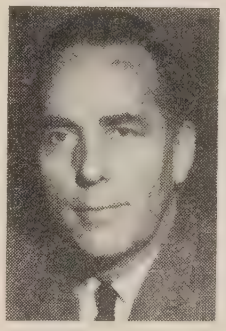
*A Symposium on Dental Research and Education* is the title of a brochure recently published by the Association of Canadian Faculties of Dentistry.

The booklet contains papers presented at the Sixth Biennial Conference on Canadian Dental Research which was held in conjunction with the second general meeting of the ACFD at Vancouver in June 1970.

For further information, write to D. V. Chaytor, Secretary-Treasurer, Association of Canadian Faculties of Dentistry, 5981 University Ave, Halifax NS.

## Awards and Appointments

For the second time the Nova Scotia Division of the Canadian Red Cross Society has won the Florence Emory Award given annually in recognition of signal achievement in nursing in the field of family health. Presentation of the award was made to Dalhousie University's Dean **J. D. McLean** who is president of the Nova Scotia Division.



J. D. McLean

Honorary membership in the Western Canada Dental Society was recently conferred on **J. B. Rumberg** of Winnipeg and **F. R. Smith** of Saskatoon. Doctor Smith is registrar-secretary of the College of Dental Surgeons of Saskatchewan.

## Deaths

Allard, Paul. 68. Montréal. Université de Montréal, 1930. 4-7-71. Survécu par Yvonne (épouse).

Baxter, John Scott. 67. Vancouver. North Pacific College, University of Oregon, 1923. 4-7-71. Survived by James Laird (brother); John (son); and three grandchildren.

Cline, Richard Emmet. 54. Vancouver. University of Toronto, 1949. 6-7-71. Survived by Anne (wife); Douglas, Bruce and Greg (sons); Mary (daughter); Mrs. Alice Cline (mother); one sister; three brothers; and one grandchild.

Snell, George Hillman. 73. Vancouver. Royal College of Dental Surgeons of Ontario, 1921. 10-6-71. Survived by his wife.

Vaughan, William R. 81. Halifax. Registered by act of legislature, 1929. 4-7-71. Survived by Viola (wife); Doctor John R. (son); Jean, Ivy, Kip and Lillian (sisters); and Doctor J. R. Vaughan (brother).

Villeneuve, Joseph William Bernard. 49. Alexandria, Ont. McGill University, 1950. 9-7-71. Survived by Mary (wife).

## Excerpts from the CDA Code of Ethics

*Professional Titles and Degrees*

1. In presenting himself to the public, a dentist should do only those things which will present him as an equal of his professional confreres, except as he may be duly qualified to practise as a specialist in his province.

2. Announcement of any nature to the public in connection with his practice should not contain any reference to procedures, equipment or qualifications – other than by accepted abbreviations of recognized degrees, diplomas and specialist qualifications recognized by the provincial legal body.

3. A dentist may use the titles or degrees, Doctor, Dentist, DDS, DMD and such other titles and degrees permitted by the provincial legal body.

*Advertising*

All direct or indirect use of publicity, advertising and solicitation are unethical.

*Professional Announcements*

1. The dentist may use such sign or signs which in size, character, wording and position, reasonably may be required to indicate the entrance and location of the premises in which the practice is located. Such signs should be of the character, size and material as may be approved by the provincial legal body.

2. The dentist may indicate on his professional stationery only his name, degrees, recognized specialty, office address, office hours and telephone number.

3. The dentist may use honorary degrees in college registers, calendars, textbooks, and published articles in journals if in conformity with the policy of the editorial board. The use of letters after a person's name signifying membership in a society is unethical.

# Conservative treatment of deep carious lesions

**R. E. Jordan, DDS, MSD**
**M. Suzuki, DDS, MS, DMD**
**London, Ont**

*The authors report a 98 per cent clinical success rate from indirect pulp capping of 243 selected teeth with deep carious lesions. After excavating the superficial content of the cavities, the subsurface demineralized dentine was sealed with a zinc oxide-eugenol cement reinforced with polystyrene and silver amalgam alloy powder. Radiographic signs of remineralization were usually observed after 10-12 weeks. The lesions were then reopened, any remaining softened dentine was totally excised, and the teeth were restored with permanent fillings. The authors stress that their clinical findings await confirmation by electron microprobe analysis and microradiographic studies.*

*Les auteurs signalent un taux de réussite clinique de 98 p.c. durant le coiffage indirect de la pulpe de 243 dents choisies, atteintes de lésions carieuses profondes. Ils ont excavé le contenu superficiel des cavités, puis scellé la dentine déminéralisée sous-jacente à l'aide d'un ciment à l'oxyde de zinc-eugénol renforcé de polystyrène et d'une poudre d'alliage d'argent. Des signes radiographiques de reminéralisation apparaissaient en moyenne au bout de 10 à 12 semaines. Ils ont alors réouvert les lésions, totalement excisé la dentine restante ramollie et restauré les dents à l'aide d'obturations permanentes. Les auteurs soulignent que leurs observations cliniques attendent d'être confirmées par une analyse à la microsonde électronique et des études microradiographiques.*

Despite extensive research, endless debate, and voluminous literature on the subject there is still little agreement among clinicians on the most acceptable treatment for deep carious lesions in close proximity to the pulp. Fauchard,[1] who first called attention to one side of the controversy in the middle of the eighteenth century, wrote: "When the molars are decayed up to the centre of their width, when the caries has penetrated to their (sic) cavity so that they are extremely sensitive, all the caries should not be removed for fear of exposing the nerve and making the cure worse than the disease." Black,[2] during the late nineteenth and early twentieth centuries called for quite a different approach: "In no case should any decayed and softened material be left. It is better to expose the pulp of the tooth than to leave it covered only with softened dentine."

A similar divergence of opinion exists today. Deep carious lesions are now quite commonly treated by the immediate total excision of all softened demineralized tissue. If the pulp is surgically exposed, direct capping with calcium hydroxide is used to stimulate the formation of a dentine bridge. Many other clinicians prefer the purportedly more conservative indirect capping technique where only a portion of the carious dentine is removed and the cavity is sealed temporarily before further treatment.[3-5]

Those who use the direct method contend that all softened demineralized dentine must be extirpated immediately; otherwise the disease spreads, thereby endangering the vitality of the pulp. One need only encounter a single active carious lesion beneath a permanent restoration (Fig 1) in order to appreciate such an opinion.

Supporters of the alternate approach, on the other hand, point to recent clinical and laboratory studies[6-9] which suggest that indirect capping is far more conservative in treating all deep-seated carious lesions in vital healthy teeth.

Direct techniques assume that all carious dentine as well as the underlying pulp in a deep lesion are infected. But histological observations of pulpal tissue under such lesions often reveal only mild inflammatory changes.[10-12] Sarnat and Massler[12] have shown that the deepest demineralized layer of dentine in a carious lesion is usually free of bacteria. Recent clinical and laboratory investigations indicate that in vitro and

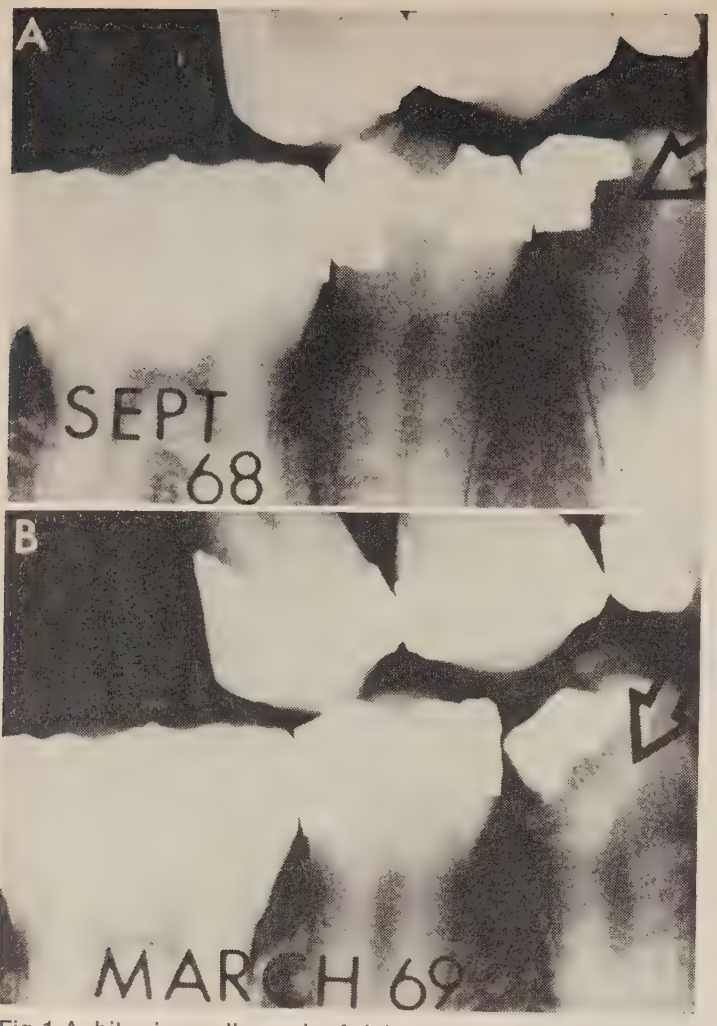



Fig 1 A, bitewing radiograph of right posterior teeth of a 28 year old patient. Arrow indicates an active carious lesion beneath a silver amalgam restoration. B, the same tooth six months after indirect pulp capping. Arrow indicates radiopaque area of apparent remineralization.

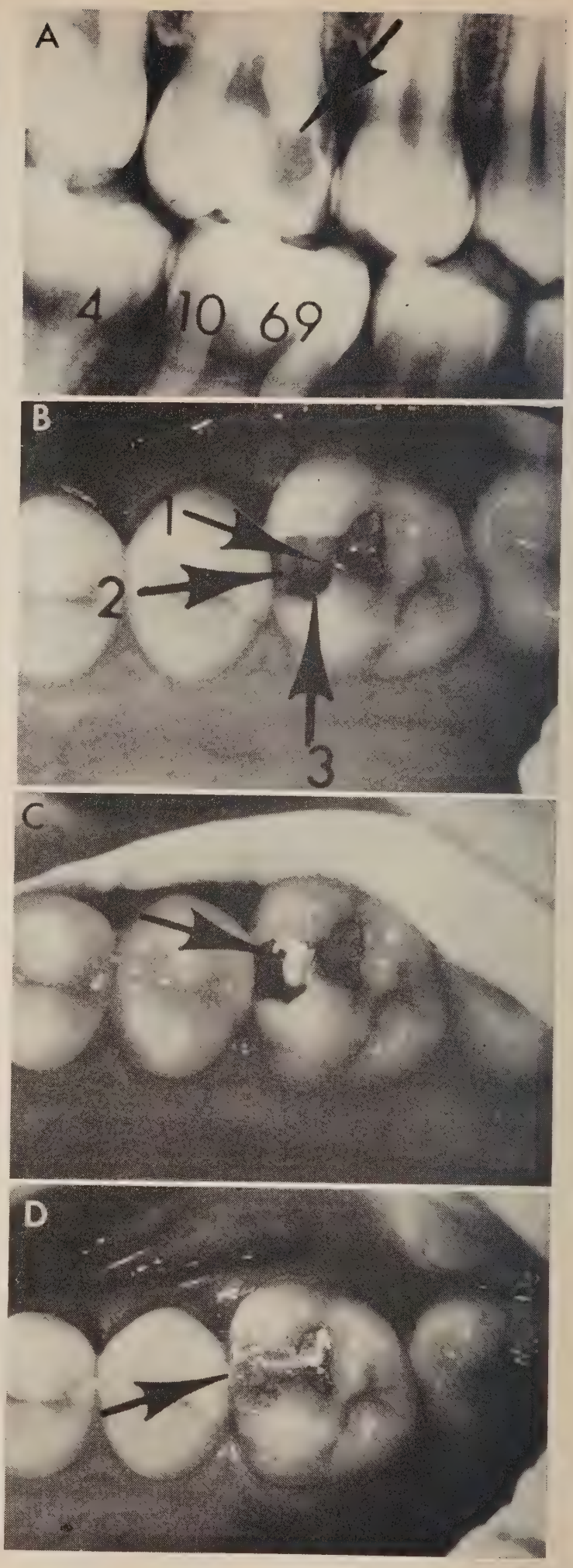



Fig 2 A, radiograph showing a deep carious lesion in the maxillary right first molar of a 26 year old patient. B, occlusal view of the same tooth after superficial excavation at initial treatment. Arrow 1 shows minimal depth of excavation. Arrow 2 indicates an intact gingival cavo-surface margin. Arrow 3 shows an undercut in the lingual proximal wall. A similarly placed buccal undercut aids retention of the temporary dressing. C, occlusal view shows a layer of calcium hydroxide covering the subsurface demineralized dentine. D, occlusal view shows the cavity sealed with zinc oxide-eugenol cement reinforced with polystyrene[21] and amalgam alloy powder.

in vivo remineralization of carious dentine may occur in response to a variety of techniques.[13-18] For instance, when deep carious lesions are treated by removing the superficial necrotic portion and applying calcium hydroxide, zinc oxide-eugenol cement or cresatin-calcium hydroxide mixtures, some of the previously affected dentine may remineralize after varying periods of time.[4,15,19,20] Whether this is due to precipitation of calcium salts in the dentinal canals, to mineralization of a matrix secreted by the stimulated odontoblasts, or a combination of both, is uncertain.

The authors undertook the present investigation in order to establish clinical data on the efficacy of indirect pulp capping and to demonstrate by means of electron microscopy, microprobe analysis and histological techniques the nature of dentine "healed" in response to the application of various agents. This report pertains to the clinical findings only.

## Materials and methods

Two hundred and forty-three deep carious lesions in the permanent teeth of 97 patients were treated by indirect pulp capping. There were the same number of male and female patients who ranged in age between eight and 37 years. All lesions appeared on radiographs to be clear cut exposures (Fig 2A) and, presumably, if all caries had been removed at the first appointment, direct clinical pulp exposures would have resulted. The teeth exhibited various symptoms including hypersensitivity to thermal change and mild pain during function. Routine pre-operative vitality tests were performed on all affected teeth using standard electrical, thermal and "test cavity" methods. The last procedure involved gentle instrumentation on an intact unanaesthetized dentine surface. All of the teeth selected for treatment responded well within normal limits to the various vitality tests and none had a history of spontaneous prolonged pain or pain to percussion.

Initially, the carious lesions were superficially excavated (Fig 2B) with ultra high-speed cutting techniques under water spray. No attempt was made to remove all decalcified dentine and only the superficial necrotic layer of caseous material was excised. Commercially available calcium hydroxide capping agents (Dycal, Caulk; Hydrex, Kerr; Pulpdent, Pulpdent Corp), a mixture of calcium hydroxide and cresatin,[4] and zinc oxide-eugenol cement were applied to the subsurface demineralized dentine (Fig 2C). The lesions were then carefully sealed using zinc oxide-eugenol cement reinforced with polystyrene[21] and silver amalgam alloy powder (Fig 2D) and the patients were instructed to return for postoperative radiographic and clinical examination. After varying periods of time all lesions were reopened, the softened dentine in each was totally excised and permanent restorations were placed.

## Results

The success of the experiment was assessed in terms of the following criteria: (1) radiographic evidence of apparent remineralization as indicated by an increased radiodensity of the affected dentine (Fig 1, 3, 4, 5); (2) direct clinical examination of apparently remineralized dentine during final cavity preparation; (3) absence of direct clinical exposure after the removal of all decalcified dentine during final cavity preparation; and (4) continued pulp vitality.

On this basis, 236 of the original 243 lesions, or 98 per cent, were successfully treated. The remaining seven cases were found to be failures on postoperative examination. These were then treated endodontically.

Three additional observations are of clinical interest. These pertain to (1) healing time; (2) differential effectiveness of the various agents; and (3) retreatment.

*Healing time*—Radiographic and clinical evidence of apparent dentine remineralization was never observed in less than 10 weeks (Fig 4). The time required for some radiographic evidence of remineralization ranged from 10 to 16 weeks, with a mean of approximately 12 weeks.

We do not know whether a waiting time of more than 12 weeks gives a better response. However, several teeth have been assessed month by month for up to a year and few have shown significant cumulative change apart from that demonstrated three months after initial treatment (Fig 5). Cases in which the waiting period has been thus prolonged have demonstrated neither deleterious pulpal effects nor reactivation of the carious process provided a hermetic seal was maintained by the zinc oxide-eugenol cement dressing.

*Differential effectiveness of agents*—All the agents appeared to be equally effective in assisting remineralization. The degree of success appeared to be independent of the agent provided the cavity was hermetically sealed. Quantitative or qualitative response cannot be reliably assessed by direct clinical or radiographic examination, however. Definite conclusions must await the results of more sophisticated studies.

*Retreatment*—Twelve teeth showed little radiographic indication of remineralization after the customary three month waiting period. These were retreated with slightly deeper excavations and were then carefully resealed. All showed radiographic evidence of remineralization after an additional waiting period (Fig 6).

## Discussion

When the pulp is exposed during the removal of the last softened dentine from a deep cavity, it is immediately subjected to the cumulative effects of laceration, haemorrhage, pressure and bacterial invasion. It is therefore little wonder that immediate direct capping of teeth with carious exposures has such a questionable long-term prognosis.[6-8]

The indirect capping technique permits a waiting period, following the removal of the major irritants, in which the vital pulp may return more nearly to normal. The basis for a healing response—in the form of "scar-like" dentine remineralization and reparative dentine formation—is thus provided. This scar of healed tissue protects the pulp from further irritation during final cavity preparation and restoration.

Despite our relatively small number of cases, the clinical data compiled from this study appear to indicate that indirect pulp capping procedures can be highly successful when used for the pretreatment of deep lesions in teeth with relatively healthy pulps.

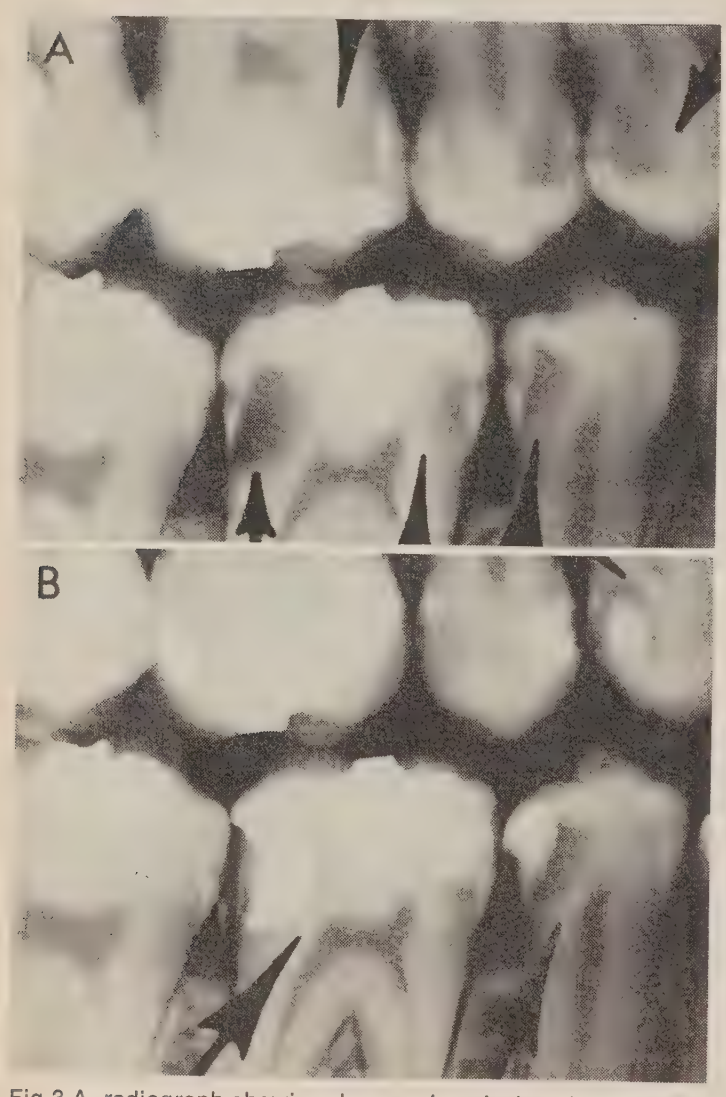



Fig 3 A, radiograph showing deep carious lesions in the right posterior teeth of a 16 year old patient. B, the same teeth 12 weeks after indirect pulp capping. Arrows indicate radiopaque areas of apparently remineralized dentine.

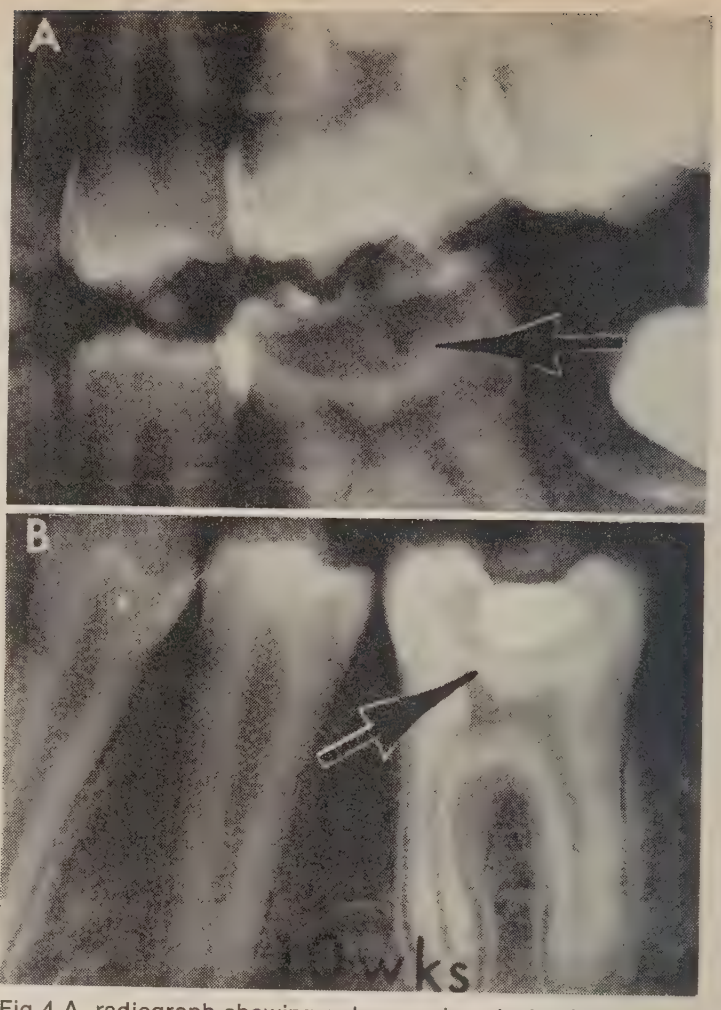



Fig 4 A, radiograph showing a deep carious lesion in the mandibular first molar of a 14 year old patient. B, the same tooth 10 weeks after indirect pulp capping. Arrow points to a thin semilunar band of radiopaque remineralized dentine.

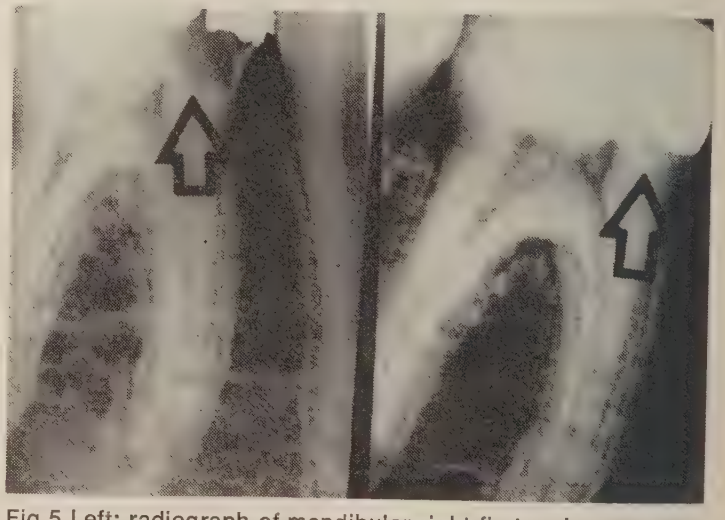


Fig 5 Left: radiograph of mandibular right first molar of a 16 year old patient with an active carious lesion beneath a silver amalgam restoration. Right: the same tooth one year after indirect pulp capping. The extent of apparent remineralization (arrow) appears identical to that seen at three months.

The answer to the question of whether decay should be totally or partially excavated may therefore be a compromise based on temporary pretreatment followed by subsequent total excision of all softened dentine before inserting a permanent restoration.

The waiting period for remineralization of decalcified dentine likely depends on many factors, as periods ranging from seven days,[3] a month to six weeks,[9] and three to six months[6] have been reported. Al-

though we did not observe radiographic evidence of remineralization in less than 10 weeks, it must be kept in mind that clinical remineralization may precede its appearance on radiographs. In any event, a 10 to 12 week waiting period appears reasonable and certainly there is no apparent harm in delaying final excavation of the deep cavity until that time.

The fact that cumulative remineralization is not clinically apparent when the waiting period is prolonged suggests there are definite limitations to the amount or extent of possible remineralization. Indeed, it would be unrealistic to expect remineralization of caseous, necrotic, obviously infected dentine. However, decalcified and softened, but still intact and vital dentine at the base of a carious lesion seems to be quite capable of remineralization under certain circumstances.

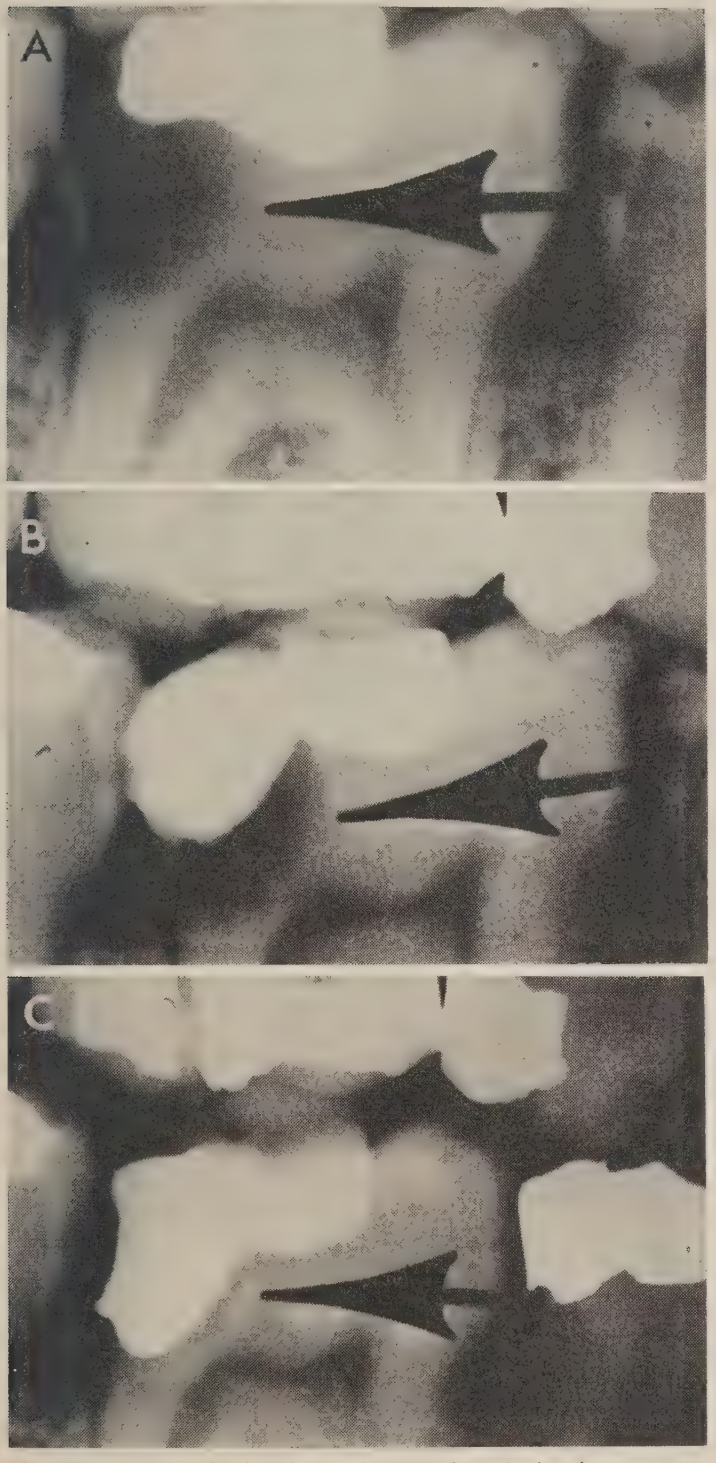



Fig 6 A, radiograph showing a deep carious lesion in the mandibular right first molar of a 15 year old patient. B, the same tooth three months after indirect pulp capping. There is no apparent change. C, the same tooth four months after retreatment. Arrow points to radiopaque area of apparent remineralization.

Calcium hydroxide is used for indirect capping because, being alkaline, it may facilitate faster or more extensive remineralization. Cresatin, a mild antiseptic, should have a similar effect. Though we did not observe any clinical difference in the qualitative or quantitative response to calcium hydroxide or cresatin-calcium hydroxide mixtures, further conclusions about the use of these agents await the outcome of current electron microprobe analyses and microradiographic studies.

Retreatment may be effective in teeth that show little response after a three month waiting period. Although we cannot at present explain this phenomenon, we strongly suspect that the original cavity seal may not have been adequate. Retreatment was, however, almost universally successful when particular care was taken to ensure a hermetic seal.

Of the 243 lesions originally treated, seven were total failures. On recall they either exhibited symptoms indicative of irreversible pulpitis, a loss of vitality, or a combination of both. In five of these cases the temporary zinc oxide-eugenol cement dressings had fractures and the patients did not return for treatment until they experienced pain.

Although all the teeth selected for treatment showed carious pulpal exposures radiographically, the success rate in this study appears unusually high. This may be attributed to careful pre-operative assessment. Pretreatment evaluation in each case indicated a relatively normal healthy pulp. Three criteria were used for this purpose, namely: pulp vitality, history of pain and the radiographic picture.

Positive evidence of pulp vitality was established in all cases. Various electric pulp tests were used as preliminary indicators, and vitality was finally confirmed during excavative procedures in unanaesthetized teeth by means of gentle instrumentation on an intact dentine surface.

All the teeth selected for treatment had been free of pain or had experienced only mild pain of short duration, usually during function. Patients with a history of spontaneous, prolonged and severe pain, or pain to percussion were rejected from the study because of suspected irreversible pulpal involvement.

All teeth selected for treatment in this study were radiographically normal.

Our clinical observations suggest that a healthy pulp and the maintenance of a hermetic seal during the waiting period are of prime importance to the success of indirect pulp capping.

## Summary and conclusions

Two hundred and forty-three deep carious lesions in 97 patients were treated by indirect pulp capping. After varying periods of time 236 lesions showed radiographic and clinical evidence of apparent remineralization. The affected teeth were asymptomatic and vital. Remineralization was not observed in less

than 10 weeks and the mean waiting period was 12 weeks. Neither a longer waiting period nor the use of adjunctive agents appeared to affect the result. Twelve of these teeth, which required retreatment after three months, also recovered successfully.

We therefore conclude that:

1. In selected teeth with deep cavities, indirect pulp capping has a 98 per cent clinical success rate.

2. A 10-12 week waiting period must elapse before there are radiographically demonstrable signs of remineralization.

3. There is no evidence that adjunctive agents like calcium hydroxide and cresatin are more effective than a zinc oxide-eugenol cement used alone.

4. Retreatment is apparently effective.

Doctor Jordan is professor and chairman and Doctor Suzuki is assistant professor in the Department of Restorative Dentistry, University of Western Ontario, London, Ont.

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Executive Director's Page

**Unemployment insurance**

In this column for the month of June, I outlined some pertinent aspects of the Unemployment Insurance Act, particularly as they applied to the employment of hygienists.

On June 14, 1971, a new act respecting unemployment insurance in Canada was passed by the House of Commons negating paragraphs 3 and 4 of my previous column. The new act lifts the previous ceiling of $7,800 at which an employee hitherto ceased to be insurable and eliminates any difference that previously existed between income received on an hourly, piece or other rate per unit of work as compared with that received on a weekly, monthly or commission basis.

Insurable employment as defined in the new act is: "employment in Canada by one or more employers under any express or implied contract of service or apprenticeship, written or oral, whether the earnings of the employed person are received from the employer or some other person and whether the earnings are calculated by time or by the piece, or partly by time and partly by the piece, or otherwise."

I again emphasize that penalties for incorrect or false filing are severe. Therefore, if any doubt exists regarding the insurability of your employees or the amount to be forwarded to the Receiver General of Canada, please contact the nearest office of the Unemployment Insurance Commission.

*Is Fluoridation Controversial?* – Fluoridation is still occasionally referred to as "controversial." That's like calling the shape of the earth controversial just because there are a few people left who insist it is flat. – Newsletter. Texas Governors' Office of Comprehensive Health Planning (November 1970)

# Histiocytosis X: A case diagnosed from the oral findings

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**D. G. Gardner, DDS, MSD**
**London, Ont**

*Histiocytosis X is the name given to a group of three diseases which have certain common manifestations, but whose pathogenesis is unknown. The authors describe how they diagnosed this disease in a 21 month old child after a thorough examination of the oral findings. They stress that dentists must always consider the possibility that oral manifestations may indicate systemic disease.*

*On groupe sous le nom d'histiocytose X trois maladies ayant certaines manifestations communes mais dont la pathogénèse est inconnue. Les auteurs décrivent comment ils ont diagnostiqué cette maladie chez un enfant de 21 mois, après examen complet des observations buccales. Le dentiste, soulignent-ils, ne doit jamais oublier que des manifestations buccales peuvent être l'indice d'une maladie générale.*

Histiocytosis X is a relatively uncommon group of diseases affecting the reticulo-endothelial system. The present article reports a case in which the oral involvement was one of the chief complaints and in which a biopsy of the oral lesions led to the definitive diagnosis. The disease spectrum known as histiocytosis X is discussed with emphasis on the oral manifestations.

## Case history

In July 1969 the senior author was requested to examine a 21 month old Caucasian girl because of puzzling oral findings. Her chief complaints were recurrent stomatitis, otitis externa and media, vulvovaginitis and seborrhoea. The birth had been normal and the patient had been breast fed until she was weaned on 2 per cent cow's milk. Because of her stomatitis, she had never taken solid food. She had gained weight slowly, was short for her age, and had first sat, walked and talked at six months, nine months and one year respectively. At 16 months she developed a punctate rash, dysuria and a purulent vaginal discharge.

Prior to the dental consultation, the patient was admitted to hospital and treated empirically with systemic fungostatics and antibiotics. The oral lesions were treated with gentian violet and bland mouthwashes. Repeated haematological studies disclosed no abnormalities and several cultures from the vagina, oral cavity, ears and umbilicus were negative for fungi.

Clinical examination revealed a pale, thin and apathetic child with fetid breath. The primary teeth were completely erupted and well formed. The anterior gingiva was inflamed but otherwise normal. In contrast, the gingiva around the molars was markedly tender, grey and appeared necrotic, the surrounding tissue being erythematous. The gingival tissue in this area could be reflected to reveal deep periodontal pockets which exposed the furcations of the highly mobile molars and contained more grey granulomatous tissue.

One of the differential diagnoses considered during the dental consultation was histiocytosis X. A radio-

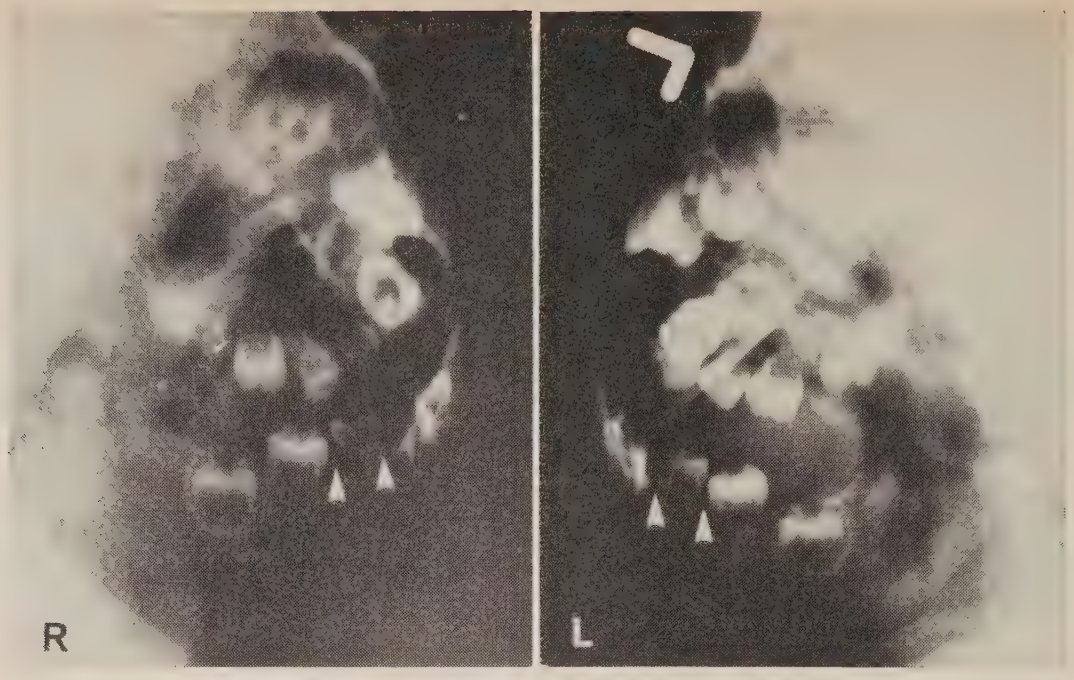


Fig 1 Lateral oblique radiographs of the jaws showing loss of alveolar bone around the primary molars (arrows), resulting in the "floating in air appearance."

graphic skeletal survey was therefore made and lateral oblique jaw films taken to evaluate the oral lesions. It was not feasible to take intra-oral radiographs. The skeletal survey revealed no bony abnormalities but the alveolar bone around all the primary molars had been destroyed. The teeth had the "floating in air" appearance classically ascribed to histiocytosis X (Fig 1).

Bone marrow studies and a liver scan appeared to be within normal limits.

All eight primary molars were extracted under general anaesthesia and a biopsy of the oral lesions was obtained. Histologically, the specimen was composed of sheets of histiocytes intermingled with numerous eosinophils (Fig 2). Special stains for fungi were negative. The pathological diagnosis was histiocytosis X. The oral tissues took almost three weeks to heal.

The Department of Paediatrics decided to treat the child as an outpatient. Weekly intravenous injections of vinblastine sulphate (Velbe, Lilly), biweekly diazepam (Valium, Roche), and injection of plasma globulins from donors who had had histiocytosis X were prescribed.

The patient was admitted to hospital again in November 1969, having been fairly well for the past few

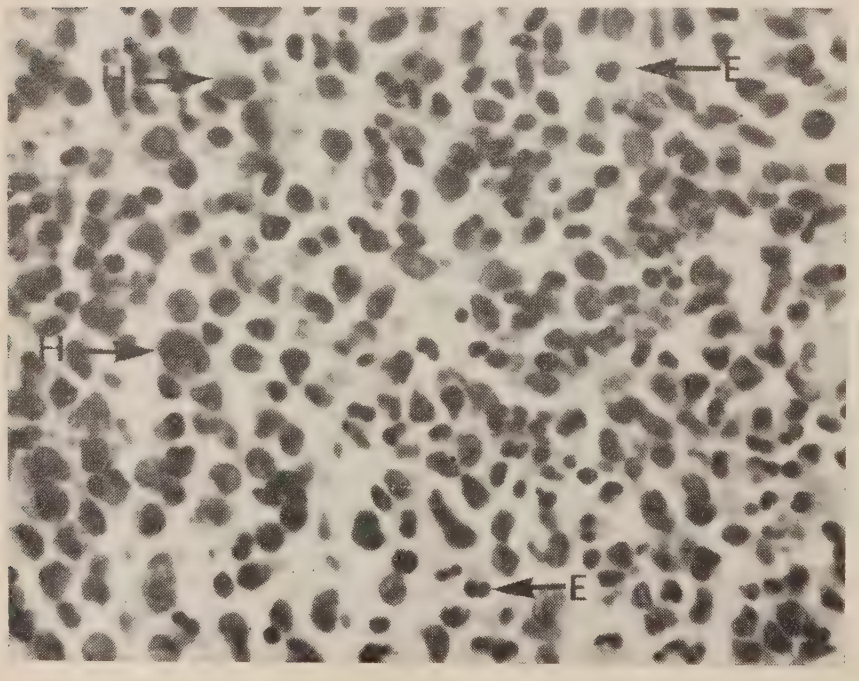


Fig 2 Histologically, the osteolytic lesions consisted of sheets of atypical histiocytes (H) interspersed with numerous eosinophils (E). H.E., x 800.

months. Her oral tissues had healed and she was able to eat solids. A dental examination revealed absence of the bicuspids but no dental treatment was recommended. A chest radiograph was clear.

In February 1970 the child was admitted with acute mastoiditis secondary to chronic otitis media. A large granulomatous mass was removed from the mastoid region and diagnosed histologically as histiocytosis X.

## Discussion

The term, histiocytosis X, was introduced in 1953 by Lichtenstein[1] to encompass a group of related disorders. Letterer-Siwe disease (LS), Hand-Schüller Christian disease (HSC) and eosinophilic granuloma of bone (EG). The rationale behind this concept was that all three disorders exhibit a proliferation of reticulo-endothelial cells in various organs. The "X" refers to the unknown pathogenesis. The combining of the three previously described disorders under the concept of histiocytosis X solves the problem of trying to differentiate between overlapping syndromes and of naming incompletely developed cases. As Farber[2] states, all three diseases appear to represent "variations in degree, stage of involvement and localization of the same basic disease process." Fundamental to this concept are the continuity and transitions among the three eponymic syndromes.

*Acute disseminated histiocytosis X (Letterer-Siwe disease)*—The name Letterer-Siwe disease was first suggested by Abt and Denenholz[3] in 1936 on the basis of reports by Letterer[4] and Siwe[5] in 1924 and 1933 respectively. This form of histiocytosis X runs an acute fulminating course in children under two years of age and is usually fatal. However, the disease may become chronic and thus merge with HSC. It is a systemic disorder characterized by painless, generalized enlargement of the lymph nodes, hepatosplenomegaly, localized osseous lesions in some cases, pyrexia, anaemia, leucopenia and cutaneous lesions. These skin manifestations may appear as seborrhoeic dermatitis with brownish papules, scales and vesicles. In the most acute phase petechiae and purpura may be present, indicating a haemorrhagic disorder.

*Chronic disseminated histiocytosis X (Hand-Schüller Christian disease)*—The eponym is derived from reports by Hand[6] in 1893, Schüller[7] in 1915, and Christian[8] in 1919. The original triad described by Hand consisted of bony defects, exophthalmos and diabetes insipidus. However, relatively few patients exhibit the complete triad. HSC is a more slowly progressive form of histiocytosis X which usually develops before 10 years of age and persists into early adulthood, although it may first occur in adulthood. The mortality rate has been reported as varying between 30 and 70 per cent.

Clinically, the most consistent findings in HSC are numerous areas of bone destruction, with a predilection for the skull, resulting sometimes in otitis media, exophthalmos or diabetes insipidus, depending on their location. Cutaneous lesions of the type seen in LS are also common as are hepatomegaly and lymphadenopathy.

*Benign localized histiocytosis X (eosinophilic granuloma of bone)*—This form of histiocytosis X, which was named by Lichtenstein and Jaffe[9] in 1940, usually consists of a single self-limiting lesion of bone destruction. Occasionally there may be more than one lesion or there may be a granuloma of the skin. These bone lesions are similar to those seen in HSC and LS and may be tender or painful. The skull, femur, mandible and ribs are most often affected. Characteristically, this disorder is found in adolescent and young adult males, seldom occurring after the age of 30. The patient is usually free of systemic manifestations although sometimes there is a mild leucocytosis, eosinophilia or fever. It is important that patients with a diagnosis of eosinophilic granuloma of bone should have complete skeletal radiographic surveys, a differential white blood cell count, and a thorough clinical examination to rule out one of the systemic forms of histiocytosis X.

## Histopathology

The essential histological finding in all types of histiocytosis X is a proliferation of atypical histiocytes. This basic pattern may vary slightly depending on the maturity of the lesion and the severity of the disorder. In the early stages the disorder is characterized by sheets of histiocytes which are often associated with numerous eosinophils. Later more connective tissue is formed but the histiocytes and eosinophils are still numerous. Later still the histiocytes may phagocytose lipid, becoming foam cells. Finally, healing may occur with resulting fibrosis.

It should be noted that it is not possible to distinguish definitively among the various forms of histiocytosis X on a microscopic basis. Lesions of slightly different histological appearance, and therefore presumably of differing maturity, may be found in the same patient.

## Oral findings

The oral findings in histiocytosis X are important to the dentist because they may easily be mistaken for common dental disorders such as periodontitis and periapical disease. Moreover, as in the present case, investigation of the oral findings may lead to the correct diagnosis.

The tooth-bearing parts of the jaw are often involved in EG, the mildest form of the disease complex. A radiolucency may be found during a routine dental examination and, if associated with a tooth, be attributed to periodontitis, a periapical granuloma or apical periodontal cyst. If the radiolucency is in an edentulous area, the diagnosis of some form of cyst or tumour may be considered. Examples of EG in the

jaws have been reported which had a multilocular appearance resembling some cases of ameloblastoma and central giant-cell reparative granuloma.[10,11] It is not possible to make the diagnosis of EG on the radiographic findings alone.

On other occasions the patient may complain of a sore loose tooth, pain in an edentulous area or failure of an extraction site to heal. If one or more teeth are very loose because of extensive bone loss the appearance radiographically may be that of "teeth floating in air."

Sleeper[12] reported that in 39 cases of HSC which he reviewed, 24 had oral symptoms as their chief or concomitant complaint. The present case exhibits the typical oral findings of apparently necrotic, greyish and tender gingiva, deep pockets and loosened teeth. Again, radiographs appeared to show teeth floating in air because of the severe bone loss.

The oral findings in LS are similar to those in HSC. Lesions of the oral mucosa are occasionally seen. Goldberg and Diamond[13] reported a case in which the oral mucosa exhibited pinpoint petechiae and macular lesions.

## Treatment

The treatment of histiocytosis X is empirical because the aetiology of the disease complex is unknown. Therapy has been discussed by Paulson, Schuster and Farber,[14] and by Bender and Holzman.[15] Among the methods which have been used are x-ray therapy, antibiotics, ACTH and adrenal corticosteroids, folic acid antagonists and nitrogen mustard. The results of treatment are variable. Localized lesions of the jaws as found in EG respond successfully to curettage.

## Premature loosening and exfoliation of teeth in children

This report illustrates why the dentist must be aware that oral findings may be manifestations of systemic disease. Premature loosening or exfoliation of teeth in children should always be viewed with concern. Localized loosening or exfoliation may be caused by periapical infection or by tumours of various types. Generalized premature loosening or exfoliation may be due to histiocytosis X, lymphomas and leukaemias, neutropenia, hyperthyroidism or hyperpituitarism. It may also be caused by uncontrolled juvenile diabetes, hypophosphatasia, acrodynia, Papillon-Lefèvre syndrome, severe bruxism and acatalasia. Some of these entities are admittedly very rare; others such as histiocytosis X and the lymphomas are more common.

## Summary

A case of histiocytosis X in which the oral manifestations led to the correct diagnosis has been reported and the general and oral findings in this disease complex have been reviewed. It is important that dentists be constantly aware that lesions in the mouth may represent the oral manifestations of systemic disease.

Doctor Schofield is associate professor in the Department of Oral Surgery, and Doctor Gardner is associate professor and chairman of the Division of Oral Pathology in the Faculty of Dentistry at the University of Western Ontario, London, Ont.

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# Detection of early oral cancer by toluidine blue

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Toronto

*The authors used toluidine blue to detect early oral cancer in 45 patients with suspicious lesions of the oral mucosa. Although the test is not reliable, it is a useful, quick preliminary screening method to be used in conjunction with other tests — particularly in clinics which handle large numbers of patients.*

*Les auteurs ont employé du bleu de toluidine pour dépister le cancer buccal précoce chez 45 patients atteints de lésions suspectes de la muqueuse buccale. Le test n'est pas totalement sûr, mais il constitue un moyen utile de dépistage préliminaire rapide à utiliser conjointement avec d'autres épreuves — surtout dans les cliniques qui traitent un grand nombre de patients.*

About 15,000 new cases of oral cancer are reported in the United States annually,[1] placing this health problem on the same level of incidence as gastric cancer and leukaemia. The death rate from oral cancer among males has been about five per 100,000 persons for the last 15 years,[1] although there have been recent indications of a higher survival rate in patients with cancers of the lip and tongue.[2]

It is well known that the extensiveness and stage at which oral cancer is apprehended directly affect response to treatment and survival;[3] patients with early and small lesions have a 64-93 per cent hope of five year survival depending on the site of the malignancy. Unfortunately, most patients seeking treatment already have advanced cancer. This is particularly deplorable because the mouth is readily accessible and precursors or oral malignancy such as leucoplakia, erythroplakia, atrophy and hyperplasia are easily recognized.

## Historical review

Toluidine blue[4,5] (tolonium chloride), an organic dye with a molecular weight of 305.83Gm and yielding a blue aqueous solution, is considered a nucleic acid stain. In 1962 Strong et al[6] described its use as an in vivo topical stain for screening suspicious oral lesions. Shedd[7] recorded his experience with toluidine blue after citing earlier work by Richart in gynaecological literature in 1963 and by Mebel and Chomet in dental literature in 1964. Shedd[8] subsequently demonstrated a positive staining response by oral cancer and dysplastic mucosa to the topically applied dye, and a negative response with normal mucosa.

These clinical studies strengthened the belief that toluidine blue might provide a simple and quick, yet efficient clinical test for directing the clinician's attention to possible areas of early oral cancer.

## Clinical study

To assess its reliability, the toluidine blue test was carried out on 45 patients with oral mucosal lesions. About half were drawn from private surgical consultation or from the dental clinic at the New Mount Sinai Hospital, Toronto; the remainder were in-patients of the Ontario Alcohol and Drug Addiction Foundation's Toronto unit. The predominant clinical diagnosis in the latter group was mucositis accompanied by varying degrees of dental neglect and frequent excessive alcohol intake. One malignancy was suspected preoperatively.

Pre-and post-test photography formed part of the investigation.[8] One per cent acetic acid was applied to the oral lesion to cleanse away mucus and debris. Toluidine blue (1 per cent) was then applied and allowed to stain for 10 seconds followed by a further application of acetic acid. Patients with diffuse lesions used a mouth rinse containing 5ml of dye.

**Toluidine blue test results categorized according to tissue biopsy findings** **Table 1**

| Histological classification | Stain positive | Stain negative |
|---|---|---|
| Normal | 4 | 3 |
| Hyperplasia | 10 | 11 |
| Atypical | 1 | 0 |
| Carcinoma in situ | 1 | 3 |
| Carcinoma | 1 | 0 |
| Inflammation | 6 | 5 |
| Total | 23 | 22 |

A test was read as postive if the mucosal lesion displayed gross blue staining and negative if it did not, although in some cases the results had to be estimated. A biopsy of the lesion was then taken, examined microscopically and categorized as normal, atrophy, hyperplasia, atypical, carcinoma in situ, or carcinoma. The presence of inflammation was also noted (Fig 1).

## Results

One early carcinoma of the lip was diagnosed clinically, stained positively and was excised. Twenty-two of the remaining 44 patients gave positive tests; results in the others were negative. None of the positive group showed histological or biological carcinoma. There was no histological difference between the two groups (Table 1).

## Discussion

False positive reactions from toluidine blue have been previously reported.[7,8] These may be caused by traumatic ulceration, granulation tissue, openings of palatal salivary glands, lingual fissures, herpetic ulcers, mucin, food particles or purulent exudate. Since only the exposed surface of cancer will stain with toluidine blue, its greater submucosal bulk may not

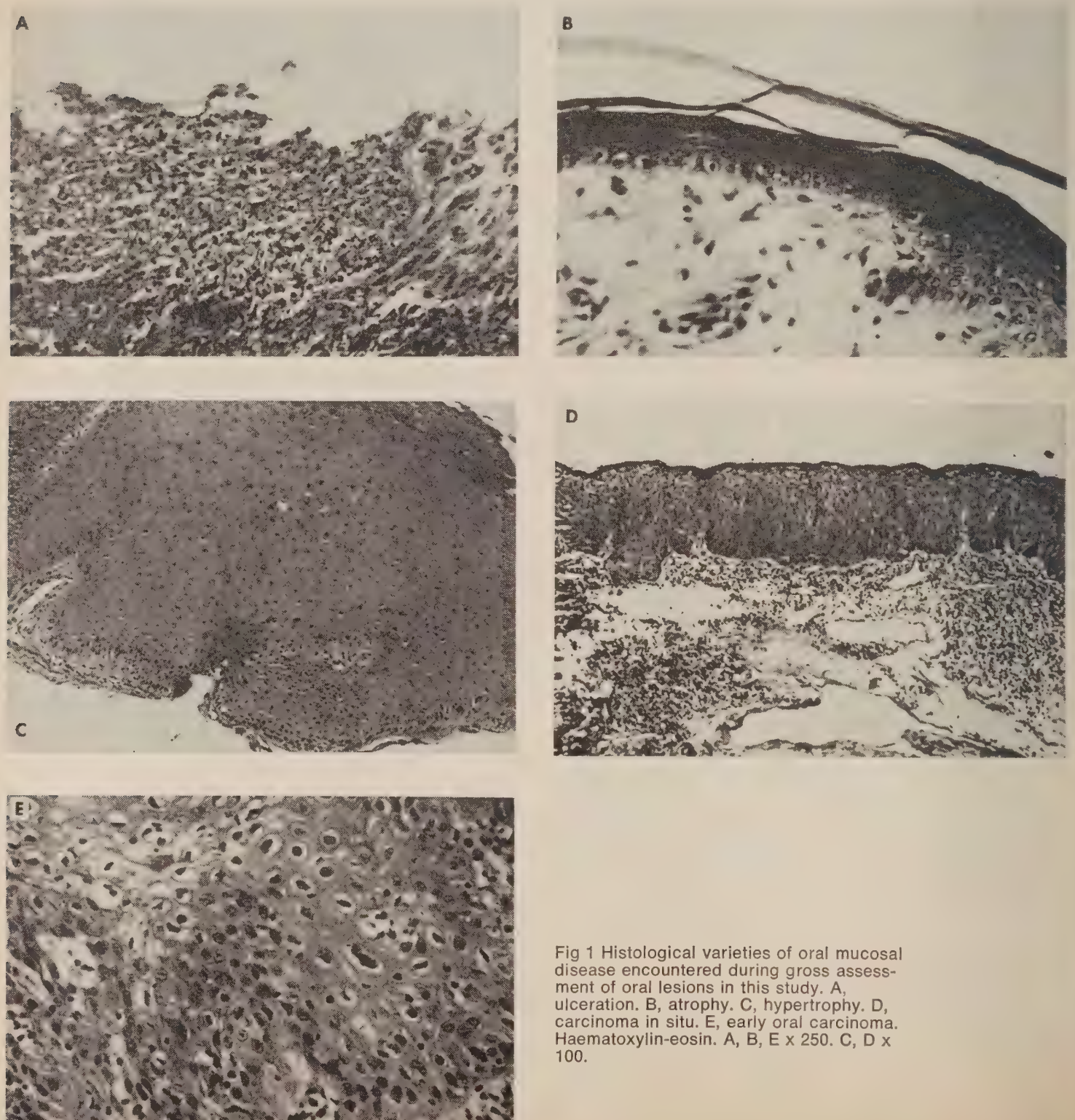


Fig 1 Histological varieties of oral mucosal disease encountered during gross assessment of oral lesions in this study. A, ulceration. B, atrophy. C, hypertrophy. D, carcinoma in situ. E, early oral carcinoma. Haematoxylin-eosin. A, B, E x 250. C, D x 100.

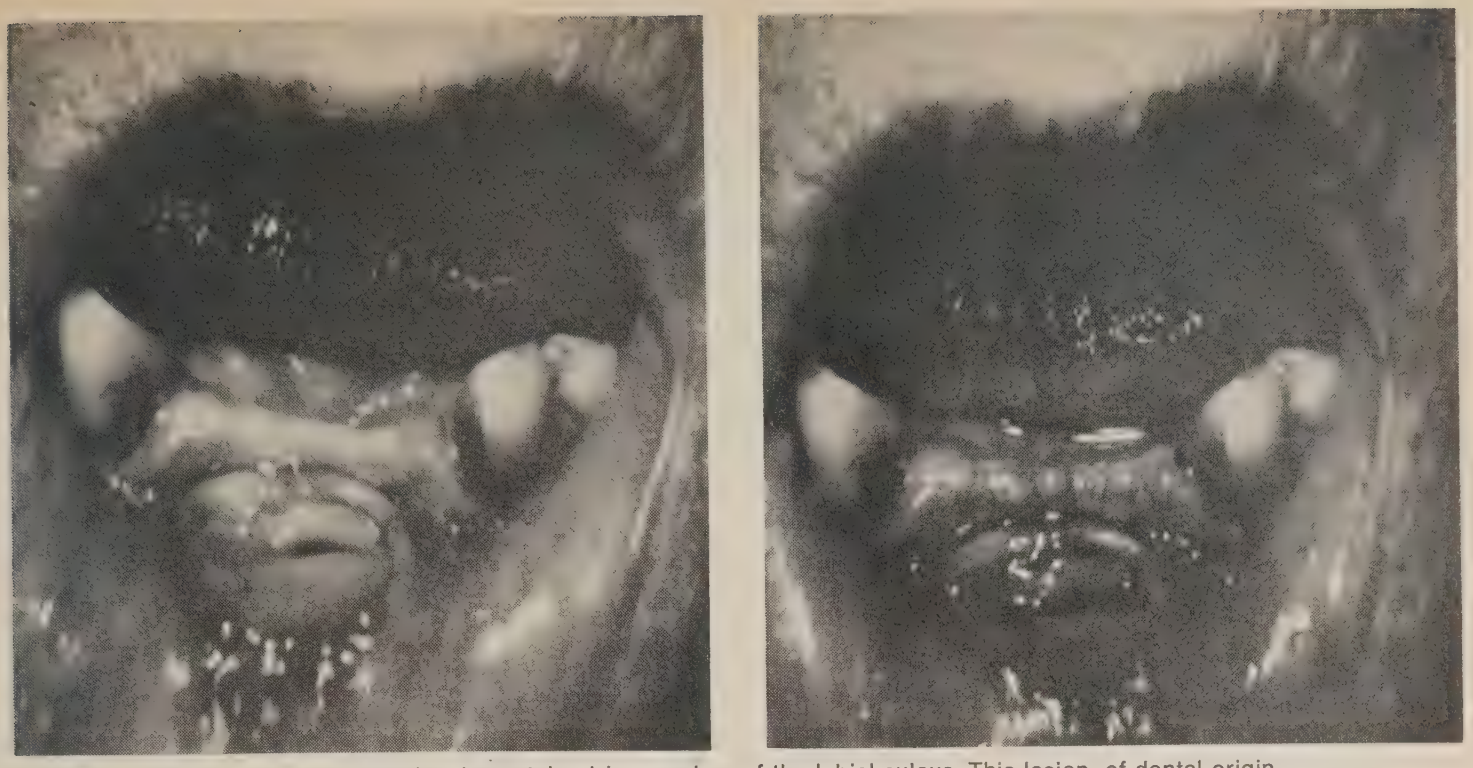

Fig 2 False positive result caused by dye retained in an ulcer of the labial sulcus. This lesion, of dental origin, was benign.

be appreciated. Shedd[7] recommends the use of magnification to increase the efficiency of the test.

Our study shows that toluidine blue gives false positive results and is therefore unreliable as a quick, efficient screening test for early oral carcinoma (Fig 2). It may, however, help in selecting sites worthy of verification in patients with scattered oral lesions. The test may also have some value in clinics that handle a large number of patients. It may permit more intelligent assessment of tumour extent and earlier detection of post-treatment occurrence.

Cytodetection, which has proved to be so important for the detection and treatment of early oral cancer, is an essential of competent and definitive oral care. But oral cytodiagnosis has not had the same impact on treatment policy as has its counterpart in the management of carcinoma of the uterine cervix. Valuable as oral cytodiagnosis is and interesting as toluidine blue screening may be, neither should supplant clinical suspicion and early tissue biopsy in the detection of early oral cancer.

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# Sealing of root perforations by apicoectomy

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*This report shows how surgical intervention can be necessary in endodontic treatment. The authors explain how conventional endodontic treatment failed to seal two pre-existing root perforations in a maxillary cuspid. By subsequent apicoectomy they were able to correct these defects and seal the perforations with amalgam restorations.*

*Le présent rapport démontre l'utilité d'une intervention chirurgicale dans les traitements endodontiques. Un traitement endodontique classique préalable n'avait pas permis de sceller deux perforations préexistantes dans la racine d'une canine supérieure. C'est grâce à une apiectomie subséquente que les auteurs ont pu corriger ces défauts et sceller les perforations à l'aide d'obturations à l'amalgame.*

Indications for endodontic surgery are modified by the individual patient's need and the dentist's ability. Luebke, Glick and Ingle[1] have listed the major indications for surgical intervention as: (1) the need for drainage of the apical tissues; (2) the failure of conventional therapy; (3) the predictable failure with conventional therapy; (4) the impracticality of conventional therapy; and (5) procedural accidents during endodontic therapy. Perforation, which is listed under procedural accidents, is the main complication presented in this report.

## Procedure

In November 1967 a 31 year old male was seen for a routine dental examination, which included a full mouth series of radiographs and intra-oral examination. The patient's general health was good and his medical history was non-contributory.

The treatment plan was to replace the missing maxillary right first and second bicuspids and first molar with a removable or fixed prosthetic appliance if the maxillary right cuspid (Fig 1) could be retained. The patient was comfortable but stated that "the tooth ached about once a month."

## Examination

The cuspid had a large labial-distal-lingual amalgam restoration extending well above and below the cemento-enamel junction. It also had a lingual zinc oxide-eugenol restoration, which the patient stated was placed one year previously following an incomplete attempt at root canal filling.

The tooth gave no reaction to palpation and percussion. Severe distal bone loss and a 5mm periodontal pocket were observed. The tooth had a +2 mobility, possibly due either to the loss of bone coronally, apically, or both.

Radiographs revealed a 5 x 9mm apical radiolucency, a thickened periodontal ligament and severe

Fig 1 Original radiograph taken in November 1967.

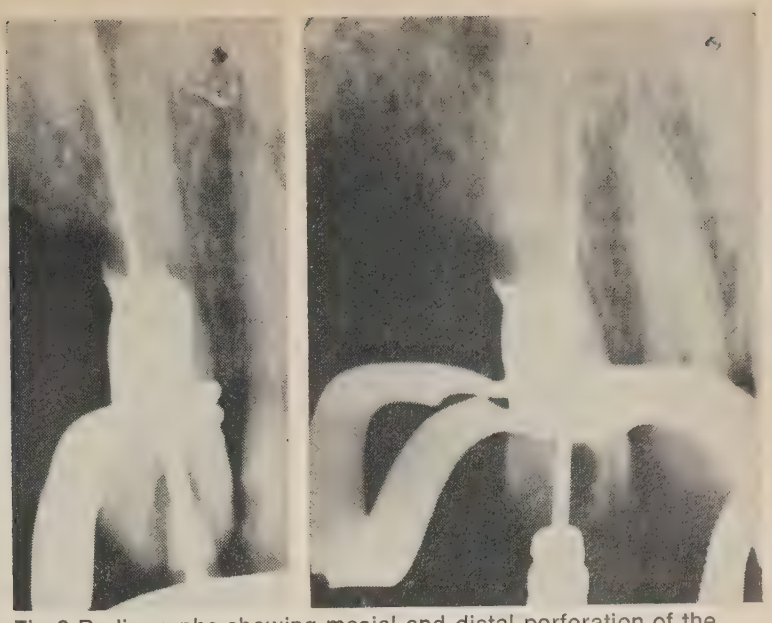

Fig 2 Radiographs showing mesial and distal perforation of the cuspid root.

distal bone loss. A cement base was evident under the amalgam restoration.

A root canal filling was deemed possible and desirable to preserve the tooth and shorten the span of a cuspid clasped removable prosthetic appliance. The cuspid was not a good abutment for a fixed appliance.

**Treatment**

The usual endodontic procedures were followed throughout the course of treatment. Access to the canal through the amalgam was achieved with a long shank round bur. In attempting to establish the length of the canal, mesial and distal perforations were discovered (Fig 2). The rubber dam and amalgam restoration were removed for better access to the canal. An accurate diagnostic radiograph was then possible (Fig 3).

The amalgam filling was replaced with a pin-retained restoration after first temporarily blocking the canal with a large silver cone coated with cocoa butter (Fig 4). The silver cone was removed after the amalgam was inserted.

A silver cone was subsequently cemented in place and the perforations sealed internally with lateral condensation of gutta percha. The lingual opening was restored with amalgam (Fig 5). The patient suffered no discomfort as a result of this.

He returned late in March 1968, reported that the tooth was loose and complained of swelling and some pain. When questioned he stated that up to that time he had managed well and that the tooth had been stable.

Clinical examination revealed once again a +2 mobility and a +2 sensitivity to percussion and palpation. The periapical bone condition was unchanged since the last treatment (Fig 6).

In April 1968 a full periodontal flap was used to expose the area and the original perforations were found to be only partially filled with gutta percha. An apicoectomy with curettage was performed and amalgam restorations were placed in the mesial and distal perforations. Postoperative healing was uneventful (Fig 7).

In September 1968 the patient was re-examined. Radiographs revealed 80 per cent apical healing (Fig 8). There was only slight mobility attributable to the occlusal bone loss and the periodontal condition. The soft tissues were normal and the patient was completely comfortable.

Fig 3 Amalgam restoration removed. Instrument in canal.

Fig 4 Amalgam restoration replaced with silver cone in position.

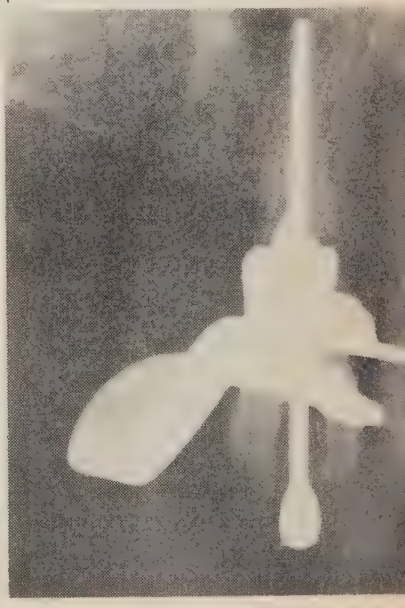

Fig 5 Radiograph taken after completion of treatment in November 1967.

Fig 6 Radiograph taken in March 1968 after recurrence of symptoms.

Fig 7 Postoperative radiograph following apicoectomy and curettage in April 1968.

Fig 8 Radiographic appearance on recall examination in September 1968.

Fig 9 Radiographic appearance in March 1969.

In March 1969 further radiographs showed that the apical healing was 100 per cent, the tooth was stable and the patient completely comfortable (Fig 9).

## Conclusions

Perforation sealing, although not impossible to do internally with amalgam or gutta percha, is much more easily and satisfactorily accomplished by the external surgical approach.[2] Surgical intervention should have been part of the initial treatment as it would have given a more favourable prognosis for retention of the tooth.


## Summary

A case of endodontic treatment with procedural complications is presented. Perforations which should have been sealed with gutta percha were restored with amalgam at the time of surgery.



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# Removal of a foreign body from the lip

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Accidents involving the middle and lower third of the face often result in fractured teeth, be they natural or artificial. Since the loose fragments can only be at the scene of the accident or in the body, an attempt should be made to demonstrate them so that the latter possibility can either be ruled out or rectified.

The literature abounds with examples of pathological consequences arising from failure to recover embedded, aspirated or swallowed foreign bodies. These include bronchiectasis,[1] tongue abscess,[2] maxillary sinusitis[3] and non-union of fractures.[3]

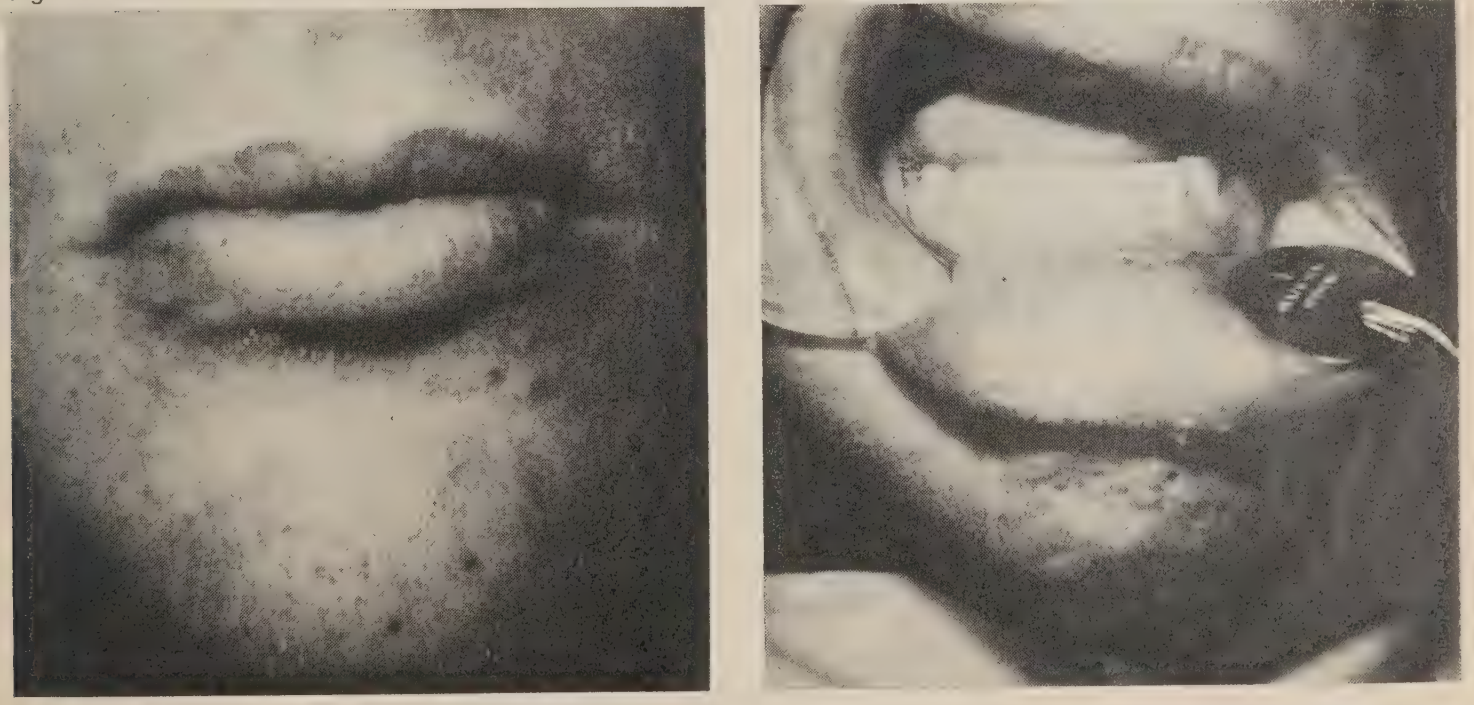
The case reported here was discovered early enough to avoid serious sequelae or radical treatment.

## Report of case

*History* — A 22 year old man came to my office to have a broken upper denture repaired. Two weeks previously he had slipped on a waxed kitchen floor and collided against the table lacerating the lower lip and breaking his upper denture. He went to the emergency department of the local hospital where the laceration was sutured.

*Examination* — The patient had brought all the denture fragments except a part of a central incisor.

Fig 1



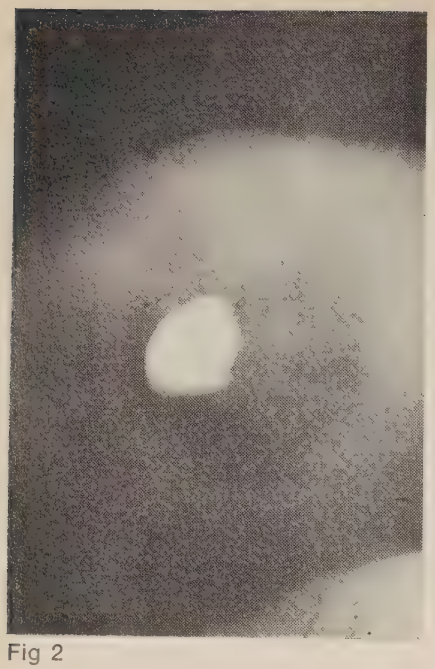


Fig 2

Fig 3

On a cursory visual examination the involved lip area seemed to be healing normally (Fig 1). However, palpation of the region revealed a hard lump.

A radiograph of this part of the lip[3] showed a radiopaque foreign body surrounded by a slightly larger radiolucent area (Fig 2). I attributed the radiolucency to incipient tissue destruction.

*Operative procedure* — The scar was excised and the incision was carried down to the foreign body.[4] Everting the lip as shown in Figure 3, the fragment was pushed out. It proved to be the missing piece of the broken central incisor.

The wound was closed with interrupted .0000 nylon sutures, and the postoperative course was uneventful.

**Comment**

The removal of a foreign body from the lip is described. The report also shows how the consequences of a simple mishap may be aggravated by a minor oversight. Serious complications can be avoided by accounting for all fragments of teeth or prostheses at the time of the accident.

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## Book Reviews

### Oral Implantology

*A. N. Cranin, ed. Springfield, Ill, Charles C Thomas, 1970. 340 p. Illus. $25.75*

This book dealing with a highly specialized field is well written, nicely illustrated, and fairly easy reading for general practitioners and specialists. Though still a controverisal topic, the subject is exciting and has great potential. But while it is of definite interest to general practitioners, oral implantology is only for those who have had adequate postgraduate training and are fully aware of potential pitfalls for the patient and the dentist.

The introductory section covers, among other things, the history of dental implants, premedication and anaesthesia in implant surgery, and pharmacodynamics.

The remaining six sections deal with the various types of implants. They comprise (1) subperiosteal implants (including full mandibular and full maxillary subperiosteal implant dentures, universal implant dentures and unilateral subperiosteal implant dentures); (2) endosseous implants (including tripodial pin implants, endosseous ventplants, endosseous blade implants, two-piece heli-coil endosseous implants, polymer implants and anterior vertical transosseous implants); (3) endodontic implants; (4) miscellaneous prosthodontic implants; (5) maxillofacial implants; and (6) periodontal and alveolar implants.

Cranin defines implantology as the study of the placement of foreign materials into or onto the jawbones to replace or support an artificial dentition. This all-inclusive term embraces anatomy, physiology, histology and pathology of the supporting structures. The mastery of implantology also includes the surgical, prosthetic, and other biochemical knowledge.

Apparently one of the greatest hazards in dental implantology is periimplantoclasia, which is defined as a disease surrounding or involving implanted foreign materials. This problem may exhibit exfoliative, resorptive, traumatic or neurotic ulcerative manifestations.

Cranin regards the full mandibular subperiosteal implant denture and the endosseous blade implant as the most useful and practical implants for normal dental needs. The former may help where a conventional full lower denture proves intolerable. Blade implants are useful in the free end saddle areas, eliminating the need for a removable prosthesis. They are durable as well as one of the easier implants to insert.

*Oral Implantology* covers the entire field and allows generous space for case histories and conclusions. Some 28 contributing authors have helped to make this book well rounded and well worth reading.

*F. V. Currie*

### Pathology of the Dental Hard Tissues

*J. J. Pindborg. Toronto, W. B. Saunders Company, Canada Limited, 1970. 443 p. Illus. $31.35*

This book is a long overdue encyclopaedia of the pathology of the dental tissues. Only those with long memories can recall Kronfeld's classic work in this area. The year was 1937–long before we were overwhelmed by contributions from Thoma, Stones and Schaffer where the emphasis moved from the dental tissues to all other organs in the facial complex. These later authors set the current vogue in teaching "oral pathology" rather than "dental pathology." Pindborg's book reverses the trend and swings the pendulum back in the opposite direction.

The book is profusely illustrated. The descriptions are marked by fine detail, and the entire work is conscientious in its coverage of common as well as rare mishaps to the dentition.

The preface reminds us about the paucity of epidemiological data pertaining to many disorders. This causes difficulty in weighing the relative clinical significance of certain conditions. For example, we have all heard about Turner's teeth, but what is their incidence? And what about our knowledge of the much commoner enamel hypoplasia, which Pindborg terms "meagre?" These deficiencies are not of the author's making but of the dental profession which has failed to accord the subject the attention it deserves. Hopefully this publication will inspire research workers to study these abnormalities with greater care.

*Pathology* is not for those who seek light reading. Its value lies in careful study of selected topics, one at a time, so that the reader may digest the scholarship that has gone into their preparation.

Though certainly no undergraduate textbook, *Pathology* is a must for all oral pathologists and readers interested in hospital practice.

The price is reasonable when compared to other similar publications, and the publishers should be congratulated on their fine effort.

*J. R. Trott*

### Operationslehre für Zahnärzte

*Eberhard Krüger. Berlin, Buch- und Zeitschriften-Verlag "Die Quintessenz," 1970. 240 p. Illus. DM 69.00*

Eberhard Krüger states that his book was written to help the general practitioner in his daily routine. The result is a summary of most of the surgical training given to undergraduate students in the dental school in Bonn, Germany.

Outlined are all types of injections, including subcutaneous, intravenous and intramuscular forms. The various techniques of intra- and extra-oral local anaesthesia are discussed. Doctor Krüger also devotes some chapters to inhalation and injection-induced general anaesthesia. Another chapter deals with various surgical complications such as shock and laryngeal spasm, and describes effective remedial procedures.

Various instruments, techniques and procedures for the surgical removal of teeth, root tips, cysts and tumours are discussed. There is also a chapter on tooth replantation, endodontics and gingivectomy techniques.

The text is well illustrated with photographs and drawings. The subject matter, however, is similar to what one can find in almost any English text on general surgery. Consequently, there is nothing to inspire the practitioner to translate in the hope of learning something novel.

*Malcolm Yasny*

### Improving Dental Practice through Preventive Measures

*J. L. Bernier and J. C. Muhler, ed. Ed 2. St. Louis, The C. V. Mosby Company, 1970. 443 p. Illus. $26.15*

This book is the second edition of a unique attempt at presenting a broad concept of preventive dentistry. It is

evangelistic, pragmatic and scientific with varying degrees of success. Caries prevention by tradition is the major component of efforts devoted to "preventive dentistry." This text is no exception and herein lies its greatest strength. While the title is clinically directed, there is ample basic information on enamel, caries initiation and nutrition.

Stookey's excellent review of fluoride therapy in chapter 6 alone justifies acquisition of the book by student or practitioner. The 64 pages and 276 references in this chapter are an outstanding compilation and summary of the vast amount of material on the subject.

Unfortunately, much of the remainder of the book is disappointing. Evidence is not presented to relate the suggested caries activity tests to the initiation of caries. Preventive concepts in clinical disciplines such as orthodontics and periodontics are treated superficially. The clinical application of preventive concepts to the use of radiation is handled inadequately. Consequently, these chapters are neither satisfactory reference material nor particularly informative to the modern dentist.

While preventive dentistry should involve much more than caries prevention, the inclusion of a chapter on physical fitness seems unjustified. The overall impression of the text is a potpourri of clinical and scientific material that in some vague manner is supposed to improve dental practice. The very notable exceptions are the chapters on fluoride therapy, enamel and preventive nutrition.

*W. H. Feasby*

### Differential Oral Diagnosis in Systemic Disease

*A. F. Gardner. Bristol, John Wright & Sons, 1970. (Available from The Macmillan Company of Canada Limited, Toronto) 299 p. Illus. $9.75*

By treating oral and general health as though the two were separate, unrelated entities, undergraduate education tends to fragment the concept of dental care. This book offers a remedy by reminding physicians and dentists that the hard and soft tissues of the oral cavity are influenced by systemic disease. Dentists, in particular, have an increasing preventive role where systemic diseases have oral manifestations.

Gardner's book is sufficiently inexpensive that every practitioner can afford to have it for reference, in addition to Bhaskar's *Oral Pathology*. The latter is an excellent text that concentrates on differential diagnosis of oral and systemic disease. Gardner, on the other hand, devotes far more detail to pathology. But he could have avoided some duplication had he terminated each section with a description of oral manifestations.

The 10 chapters are nevertheless pertinent. They tell what the dentist should know, or where to find it. They describe the heart and blood vessels, the respiratory system, the gastro-intestinal system, liver and the biliary tract, the genito-urinary tract, the haematopoeitic system, the lymphatic system and the spleen, endocrine glands, skin, the musculoskeletal system and joints.

One typographical error will likely be corrected on reprinting. This is the conflict between page 19, where metastatic neoplasms from the lungs to the jaws are ranked third in frequency, and page 37 which declares that "the third ranking metastatic neoplasm to the jaw was from the kidney."

There is an excellent 18 page index. And although some chapters do not list references within the last five years, the material on the whole is up-to-date.

*D. S. Moore*

## Annotations

### Obturations, inlays, onlays, couronnes en fonction de la forme de la dent

*René Le Huche. Paris, Julien Prélat, 1970. 119 p. Illustré. 34 F.*

Ainsi que le laisse entendre le titre de l'ouvrage, il s'agit d'une remise en cause de la valeur des descriptions qui nous sont faites de nos préparations dentaires. Ces descriptions, en effet, sont toujours plus ou moins fausses parce que la base même du travail, la dent, n'est pas respectée dans sa forme réelle. La question vaut la peine d'être posée, nos travaux, qu'il s'agisse de simples reconstitutions ou du remplacement d'unités manquantes, loin d'être uniquement mécaniques, sont aussi et surtout biologiques, et la dent y joue un rôle primordial.

L'auteur, se basant sur l'examen d'un nombre considérable de dents extraites (plus de 6,000) montre combien il serait nécessaire de revoir notre anatomie dentaire, laquelle ne nous propose toujours actuellement pour chaque catégorie de dents, qu'une seule forme, alors qu'il en existe une quantité d'autres au moins aussi nombreuses que cette forme moyenne. Or, ce qu'il faudrait bien comprendre, c'est que, de cette forme de la dent que l'on va utiliser, forme qui lui est particulière, et différente de toute autre, dépend le mode même de sa reconstitution.

Notre anatomie dentaire n'a pas suivi les progrès de nos techniques, il est urgent de la réviser.

L'ouvrage comprend 169 figures avec plus de 500 photographies de dents naturelles suffisamment agrandies pour en bien distinguer les caractéristiques, et des modèles de préparations y sont présentés en tenant compte de la morphologie particulière de la dent.

### Etude du comportement électrochimique des métaux et alliages dentaires

*Jacques Brugirard. Paris, Julien Prélat, 1970. 282 p. Illustré. 88F.*

Ce livre fait l'étude du comportement des métaux et des alliages dentaires dans la cavité buccale. La première partie concerne des généralités sur les atomes, les molécules, les métaux et les alliages ainsi que leur corrosion en bouche.

La deuxième partie est une étude des réactifs chimiques et une description des appareillages utilisés durant les expériences. Les résultats et les conclusions sont interprétés. Les couples métalliques sont ensuite étudiés de la même façon.

L'application clinique et thérapeutique de ces recherches complète l'ouvrage. L'auteur étant d'abord prothésiste essaye toujours de placer ses expériences dans des conditions analogues à celles existant en bouche.

### Précis d'équilibration des prothèses complètes

*Raymond Sangiulo. Paris, Julien Prélat, 1971. 176 p. illustré*

L'auteur estime que l'enregistrement de l'empreinte ne doit pas être étudiée en regard de la diversité des matériaux et des techniques, mais bien par rapport au support anatomique et aux fonctions que les prothèses doivent restaurer.

Le terme d' "équilibration" est ici entendu au sens le plus large d'équilibre, c'est-à-dire de stabilité des prothèses complètes lors des mouvements physiologiques de mastication, de phonation et de déglutition.

Un choix de méthodes de montage et de dents artificielles adapté à chaque type masticatoire est décrit dans ce précis. Une équilibration terminale par meulage correspondant à chaque montage est expliquée.

Bonnes illustrations. Table de matière bien organisée. Les ouvrages cités représentent le dernier mot scientifique en Europe et en Amérique du Nord.

# The ethics of credit cards

It is easy to understand why the public has taken to credit card buying as a duck takes to water. For the consumer there is the convenience of getting something when he wants it and paying for it later. The little plastic cards are also much handier than a cheque book and far less bulky than a wallet full of cash. Retailers like them too because they stimulate business without the element of risk inherent in other forms of credit transactions. Far more important than either of these considerations is the fact that credit cards are here to stay, if for no other reason than because they represent a major step in the direction of electronic banking.

Some years ago a Journal editorial predicted how such a system might eventually work.[1] Banks would join in an international exchange of fraud-proof credit cards and would honour each others' cards at member service establishments. These establishments would include retail stores, utilities, insurance companies, medical and dental practices, industrial organizations, government agencies — in fact, enterprises of any kind which offer goods or services to the public. Each service establishment would have one or more inquiring terminals, all of them interconnected with the entire system. The consumer would present his credit card in a store and the sales clerk would then obtain from the bank of account an instantaneous commitment to pay. If the sale were consummated, information would pass through the store's terminal to the computer and the store's bank account would be immediately credited with the appropriate amount. No paper, other than a signed transaction slip, would change hands. There would be no cancelled cheque. Instead, the bank's statement of account would certify receipt for payments made.

The editorial also speculated how electronic banking might affect dental practice. A patient, her treatment completed, would present her credit card to the receptionist. The latter would fit the card to a terminal on her desk. Instantly, an impulse would travel to a computer in the patient's bank on the other side of town. The computer would scan her ledger, verify the adequacy of her balance, and debit her account in the amount of the dentist's fee. The computer would then trigger another impulse which would travel to a second computer located in the dentist's bank which in turn would credit his account. The entire circuit would take considerably less time than is used to write a cheque, mail it and secure the receipt. And for the dentist, it would convert accounts receivable into cash — an important consideration in the light of Mr. Benson's new tax bill.

Speeding the transition toward a cashless and chequeless society is the banks' mounting volume of paperwork which threatens to strangle economic progress. This avalanche of paper impedes the rate at which money on deposit "turns over." Many economists consider an accelerated money turnover essential for revitalizing sluggish economies. Any bottlenecks, they contend, must be swept aside and the ultimate answer lies in electronic banking.

But dentists have shown a certain reticence in coming to terms with this new technology. In fact some dental jurisdictions still disapprove the use of credit cards in settling accounts for dental services. This is regrettable because the issue is not so much a question of whether the cards are inherently good or bad but a question of how they are used. In this we can fall back on the principles embodied in the Association's Code of Ethics.

Our code forbids direct or indirect solicitation of patients. It also prohibits the listing of a dentist's name in directories unless such directories include on like terms and without discrimination the names of all licensed practitioners in the area served by the directory. Any listing of dentists who will accept credit cards is therefore deemed unethical. Also prohibited is the display of emblems outside a dentist's office to signify that he will accept such cards. To this one might add that it would be improper for dentists to increase their fees because of participation in a credit card plan.

Provided these strictures are clearly understood and properly observed there seems no valid reason why members of the profession should not participate in credit card programs. It would be well to re-examine the question now, before we are engulfed by the tide of events.

1 Toward the cashless and chequeless society. J Canad Dent Ass 34:573, 1968. Editorial.

# On débarque

A tous ceux qui rêvent encore: le moment est venu de se réveiller. Nous y sommes. On est là. On débarque. En Ontario et au Québec en particulier, les gouvernements provinciaux sont en train d'introduire des projets de loi qui remanieront considérablement les structures des collèges professionnels de sorte qu'ils fonctionneront principalement comme le prolongement de la législature provinciale.

Au Québec, cet automne, l'Assemblée nationale sera saisie d'une série de projets de loi découlant des recommandations de la Commission d'enquête Castonguay-Nepveu sur les professions et la société.

Que se passera-t-il au juste, et que veut dire tout cela pour le praticien?

Le premier projet de loi sera probablement celui du Code des professions, qui instituera l'Office des professions. La tâche de l'Office des professions sera de veiller à ce que chaque profession ait un code d'éthique. Ce sera un organisme composé de trois personnes qui pourra même adopter des codes de déontologie lorsque les corporations ne le feront pas. Cet office publiera annuellement un recueil des décisions relatives à la discipline des membres des corporations professionnelles, fera des rapports au gouvernement et donnera des avis sur tout sujet de son ressort.

Le Code des professions aura également pour objet: (a) de déterminer le statut juridique de chacune des corporations; (b) de prévoir pour chaque corporation un comité d'inspection professionnelle chargé de vérifier les dossiers, d'étudier les plaintes contre les membres et de tenter de régler les différends entre toute personne et un membre d'une corporation; (c) de prévoir pour chaque corporation un organe disciplinaire, de déterminer les règles d'introduction et d'instruction des plaintes et les sanctions qui, dans le code de déontologie, devront être rattachées aux actes dérogatoires; (d) de prévoir la possibilité d'un appel des décisions de cet organe disciplinaire.

Le gouvernement créera aussi un Conseil interprofessionnel chargé de faire des recommandations sur les problèmes des corporations. Il sera formé en corporation en vertu de la Loi des compagnies et il groupera un représentant de chacune des professions régies par le code.

La Loi sur les corporations professionnelles permettra au gouvernement d'instituer en corporation un certain nombre de professions et de modifier les lois organiques d'autres professions telle que la chirurgie dentaire. Elle donnera aussi au lieutenant-gouverneur en conseil le pouvoir d'en constituer d'autres par lettres patentes. Elle déterminera en outre le champs de pratique exclusif ou le titre protégé de chacune de ces professions.

Quelles sont les conséquences de tout cela? D'abord la composition du Collège sera changée afin d'admettre comme gouverneurs des personnes qui n'auront pas reçu la formation professionnelle de dentiste. Ensuite, le Collège agira principalement dans l'intérêt du public et parlera au nom du gouvernement pour tout ce qui est relatif à notre profession.

Il découle de tout cela que le dentiste devra se tourner (et ce, le plus vite possible s'il ne l'a pas fait encore) vers les organismes provinciaux et national qui s'engagent à défendre ses intérêts. L'Association Dentaire Canadienne a modifié ses règlements afin de permettre une cotisation conjointe et volontaire aux deux niveaux. Les règlements permettront aussi le transfert de la représentation à l'ADC à un autre organisme provincial établi qui s'est engagé à refléter les intérêts des dentistes.

Les prochains mois verront des bouleversements qui affecteront longtemps notre profession. Une ère vient de se terminer. Une nouvelle débute.

Terminus. Tout le monde débarque.

# Letters/Courrier

*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.*

### TMJ syndrome

A news report on page 255 of the July issue relates the temporomandibular joint syndrome to psychosomatic causes. It is nice to have a large bin for disorders which are difficult to treat, or where remission of symptoms cannot be obtained. But psychosomatics has surely outlived its usefulness in this respect.

Those of us treating TMJ or suspected TMJ patients agree on one thing–that the next patient may have a new pain or symptom or combination of symptoms, or even a set of causes which we have never heard of before. Infinite variety in human beings leads to infinite variety in reporting the nature of complicated disorders.

The investigators asked the patients why they ground their teeth–"frustration" was the reply; surely such a reply arises from the patients' reviews of lay sources of medical information. I certainly would not take my patients' opinions about the cause of toothache as evidence in an investigation of a disorder – of folklore perhaps! As for fidgeting and clenching as symptoms, anyone with the pain of TMJ dysfunction will fidget, clench and perhaps even swear. Doctors Schireson and Thomas have confused causes and effects. And 10 patients hardly constitute a broad sample.

At present TMJ dysfunction can be regarded as a dysfunction of the complex of nerves and muscles of the face and jaws and of the joints, with varying contributions as far as symptoms are concerned from each of the elements, with a considerable overlay of psychic elements in some cases. To assign a single cause is to risk failures in treatment and disbelief from colleagues.

*R. H. Roydhouse, BDS, MS, DDSc*
*Professor*
*Department of Restorative Dentistry*
*Faculty of Dentistry*
*University of British Columbia*
*Vancouver 8, BC*

### Tooth extraction and arch dimension

Referring to Doctor Fisk's comments (August Journal) concerning the article "Effects of Tooth Extraction on Arch Dimensions of French Canadian Children" in the June issue, I would like to thank him for the very constructive comments made in the last paragraph of his letter. The points he mentions are of special interest to us also and we would like to investigate them further.

As far as the second paragraph of the letter is concerned, I would like to make the following comments:

1. There is a typographical error in the first line of the fourth paragraph of the article on page 234, where the words "non-extraction cases" should read "extraction cases." This is better demonstrated in Figure 5 on the same page.

2. Doctor Fisk mentions that the inclusion of first molars in the extraction group could understandably lead to an increase in arch length and affect the extraction group means. Does he mean by this that we disregarded the first molars and included these cases in the extraction group? This is not what we did. We state that "all cases in which the first permanent molars were absent . . . were considered as extraction cases" (page 233). The graphs show that the values of arch length for extraction vs non-extraction cases are similar or slightly lower for extraction cases. It is possible that Doctor Fisk means arch breadth when he uses the words arch length. Or, perhaps he may have based his comment on the incorrectly printed sentence on page 234.

I thank Doctor Fisk again for his interest in the subject and the very constructive comments.

*Arto Demirjian, DDS, MScD*
*Faculté de Chirurgie Dentaire*
*Université de Montréal*
*Montréal 101, Qué*

### Lamina dura changes

The excellent article by Doctors Vender, Lovely and York (July Journal) emphasizes the necessity of the dentist being alert to clues to general disease presenting in dental radiographs and the importance of lamina dura changes in other than odontogenic disease.

The diagnosis of hyperparathyroidism does not usually await radiographic bone changes which are generally late manifestations. As the authors point out, absence of the lamina dura is not an infallible sign nor does its presence rule out parathyroid disease. In fact, giant-cell lesions due to hyperparathyroidism may occur rarely in the jaws while the lamina dura appears to be normal or nearly so. This investigation underscores the importance of radiographic evidence, when present, being evaluated in the light of clinical and laboratory studies in arriving at a diagnosis.

Lamina dura may also be attenuated in Cushing's syndrome, Paget's disease, fibrous dysplasia and some forms of rickets and multiple myeloma. However, once the cause of the disease has been identified and where possible corrected, it is usual for the abnormal bone structure to return to normal radiographic appearance.

*D. W. Stoneman, DDS*
*Department of Radiology*
*Faculty of Dentistry*
*University of Toronto*

### Mercury hygiene

In your editorial on mercury hygiene (August Journal) you state that "mercury vapour suppressants should be used routinely." I would appreciate receiving information on the type of mercury vapour suppressants you would advise for dental office use and details of where they can be obtained.

*R. A. Grossman, DDS*
*5465 Queen Mary Rd*
*Montreal 29, Que*

*Mercury droplets that cannot be reached without causing intolerable upheaval can be dusted with sulphur powder or covered with a water slurry of sulphur and calcium oxide. The resultant sulphide layer prevents vaporization as long as the droplets are not agitated. The materials are obtainable from chemical supply dealers. Also available for this purpose is HgX, a polysulphide compound manufactured by Acton Associates, 100 Thompson St, Pittston, Pennsylvania 18640, USA. —(Ed)*

# EXECUTIVE DIRECTOR'S PAGE

W. G. McIntosh, DDS

## Tax reform

The Honourable Edgar J. Benson presented a tax reform package to Parliament on June 18, 1971 along with his 1971 budget (summarized on page 292 of the August Journal). Many of the proposals included in the package show that the vigorous public reaction and criticism directed against his white paper on tax reform of November 7, 1969 were well received. Most of the key issues to which the Association objected in its brief on the white paper received further consideration and were either modified or eliminated in favour of positions supported by the CDA.

The one white paper proposal which seemed to attract more attention from individual members of the dental profession than any other was the proposal that dentists along with other professionals would henceforth calculate professional incomes on an accrual basis rather than on cash received. Under the "accrual" method the dentist must include in his income not only income received but income accrued in the form of accounts receivable, etc., and he is entitled to deduct his cash expenses plus his accounts payable. An attempt is made to match income against the expenses incurred to produce that income.

The government proposal was that a dentist would be required to bring into income his accounts receivable and the value of his work in progress and pay tax thereon.

The tax reform bill provides for taxation of accounts receivable and also the taxation of work in progress unless the dentist elects in his tax return to exclude work in progress from his income. Presumably such an election will only be made by a dentist where he is phasing out his dental practice in order to average income and thereby pay tax at a constant rate over several years.

Early in August Doctors Harold Beach and Ted Fox, members of the CDA Taxation Committee, met with Mr. Benson to again support the Association's stand against the accrual system. They pointed out that it would cause particular hardship for recent graduates, could make the provision of needed dental services to the public more difficult, and would require more costly and complicated accounting services in the dental offices. Mr. Benson was not to be persuaded, however.

The tax reform bill contains transitional provisions to allow for an orderly commencement of the new tax system. As has been reported in the newspapers, the bill is exceedingly complex and the provisions pertaining to the transition into the new accounting system for a dentist are no less complicated.

These rules may be summarized as follows:

1. Every amount receivable by the dentist in the year in respect of property sold or services rendered in the course of his practice must be included in income.

2. An amount will be deemed to have become receivable by the dentist on the day that is the earliest of (1) the day upon which the account was rendered, (2) the day on which the account would have been rendered had there been no "undue" delay in rendering the account, (3) the day upon which the dentist was paid for the services.

The reference to undue delay will no doubt cause considerable consternation in that it will permit the tax assessor to investigate the patient records to determine if the services provided had reached an appropriate point where an account could have been rendered. A dentist who through inadvertence or otherwise fails to render accounts when the tax assessor thinks that such an account should have been rendered will be required to pay tax on amounts which he has not received and for which he has not rendered the account.

3. A "cushion" will be established which will be equal to the lesser of the amount of the accounts receivable at the end of the dentist's 1971 taxation year and the amount of the accounts receivable at the end of his 1972 taxation year.

A dentist will only be required to bring accounts receivable into income where at the end of a particular taxation year the accounts receivable at that time exceed the "cushion" amount. For example, if at the end of the 1971 taxation year the receivables were $100,000, the 1972 taxation year $110,000, and the 1973 taxation year $120,000, the "cushion" would be established at the lesser, namely $100,000, the amount of receivables at the end of the 1971 taxation year, and the dentist would be required to include in his income for the 1972 taxation year $10,000 being the excess of accounts receivable over the "cushion." Where the receivables at the end of any taxation year are less than the "cushion," the "cushion" is reduced to this amount for future years. For example, if the "cushion" is $100,000 and at the end of the taxation year the receivables are reduced to $90,000, then for future taxation years the "cushion" will be $90,000.

4. For professional partnership, the same basic rules apply except that the "cushion" is adjusted depending upon the purchase or sale of partnership interests in the taxation year.

When a dentist dies, the "cushion" will be required to be taxed or if the dentist dies before 1976, the "cushion" may be averaged over the preceding five years.

*(Continued on page 380)*

# Dentistry in the news

## The Association

### Students hold third national conference

CDA student representatives from the various Canadian dental schools are meeting October 20-23 for the third national Canadian Dental Students' Conference.

This year's conference takes place in Winnipeg at the Faculty of Dentistry, University of Manitoba. The meeting is again sponsored by the CDA Council on Education's Student Membership Committee. Financial assistance is being provided from the Canadian Fund for Dental Education through a special grant from Colgate-Palmolive Ltd.

Conference topics include: a report of the first student table clinic program at the 1971 CDA national convention in Ottawa, and a discussion on trends in dental education, including three year undergraduate programs. Delegates will also deal with subjects ranging from student-faculty liaison to community dental projects.

## International Items

### US dentists affected by price-wage freeze

Dentists and others who charge for professional services have been required to construct a record of the highest fees charged during the 30 days prior to August 15 in order to comply with regulations under President Nixon's dollar stabilization plan. The record must be available for public inspection.

Dental fees and the salaries of dental office personnel both are directly regulated by the 90-day economic stabilization plan. Established on August 15, the plan is to remain in effect until November 12.

Generally, the regulations require that dentists and other providers of service may neither increase fees nor raise staff salaries during the freeze period. The ceiling above which fees cannot be raised is tied to a "base period"—the 30 days from July 16 through August 14. Prices, including professional fees, may not be raised above those charged for a "substantial volume of transactions" during the 30 days prior to August 15. "Substantial volume of transactions" is defined as 10 per cent or more of the transactions engaged in or services provided during the base period.

The dentist as an employer is bound by the wage and salary guidelines established by the stabilization plan. He cannot increase the salary of any employee above the highest rate in effect for that employee during the base period. He can award no bonuses or cost of living increases.

The only way a dentist can increase a salary is if an employee is promoted, assigned extra work or given a more difficult job to perform. In such cases the dentist can increase the employee's salary in relation to the employee's advancement.

State and local dental societies that had scheduled dues increases to take effect during the 90-day freeze will also have to wait until November 12.

### Chicago Midwinter Meeting set

The Chicago Midwinter Meeting, which will be held February 13-16, 1972, at the Conrad Hilton and Sheraton-Blackstone Hotels in Chicago, has scheduled more of the popular all-day courses. They will feature the following clinicians and titles: David Shelby, New York, crown and bridge prosthodontics; Marvin and Edward Sugarman, Atlanta, periodontics; Daniel Strong, New York, electrosurgery; Col. Surindar Bhaskar, Washington, current concepts in dentistry; Emmanuel Cheraskin, Birmingham, Alabama, nutrition; Daniel Garliner, Buffalo, speech therapy and tongue thrust; Philip Shipper, New York, analgesia; Loran Pilling, Minneapolis, psychiatry; and Nathan Allen Shore, New York, occlusion.

The closed circuit TV program will feature: Aaron Gershkoff. Providence, Rhode Island, implantology; Glenn Thomas, Wichita, Kansas, practice management; Claud Nabers, San Antonio, periodontics; Robert Boller, Minneapolis, paedodontics; Frank Weine, Chicago, endodontics; and Ake Parmlid, Gothenburg, Sweden, restorative dentistry.

Some 375 clinicians will present this year's table clinic presentations.

For further information or hotel accommodations, write to the Chicago Convention Bureau, 332 South Michigan Ave, Chicago, Illinois 60614, USA.

### Canadian dentists invited to Austria

Canadian dentists have been invited to attend the Winter Medical-Dental Assembly which will be held in Vienna and Innsbruck, Austria, February 23 to March 4, 1972. The theme of the conference will be "Communications in the World of Medicine Today."

Dentists wishing to attend should write to A. T. Wachna, 504 Medical Arts Bldg, Windsor 14, Ont.

### Prosthodontic congress set in Las Vegas

The Las Vegas Hilton Hotel, Las Vegas, Nevada, will be the site of the International Prosthodontic Congress, October 26-28, 1972. Host for the congress is the American Prosthodontic Society in cooperation with the Federation of Prosthodontic Organizations.

Further information can be obtained by writing to the APS, 919 N Michigan Ave, Chicago, Illinois 60611, USA.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on August 31, 1971:

*Fixed Income Fund* $11.935;

*Common Stock Fund* $23.873.

Total assets (market value) of the plan were $10,672,026.70.

The following portfolio purchases and sales occurred during the preceding month: bought 1,500 shares Dome Mines, 800 shares Southam Press and 5,000 shares Union Gas; sold 9,000 shares Acklands Ltd, 3,500 shares Dustbane Enterprises and 9,500 shares Weldwood Ltd "Rights."

Section 79B of the Income Tax Act permits tax free contributions of up to 20 per cent of earned income or $2,500, whichever is less, to a personal retirement savings program.

The Royal Trust Company, trustee of the CDA Retirement Savings Plan, offers two separate investment media: a fixed income fund and a common stock fund. Contributions may be allocated wholly or partly to the funds of the contributor's choice. Transfers between funds are allowed without penalty.

The fixed income fund, confined to guaranteed government bonds, other guaranteed fixed income securities, debentures, preferred shares and other fixed income securities, offers excellent income with maximum security. The common stock fund, comprising Canadian and carefully selected American and other foreign stocks, has capital growth as its main objective.

No charges or commissions are payable on joining or withdrawing from the plan.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Dental Organizations

### Montreal Fall Clinic program set

Two pre-convention seminars will precede the annual Fall Clinic of the Montreal Dental Club at the Queen Elizabeth Hotel, November 8-10.

Paul Jacobi of Neenah, Wisconsin, will discuss practice management on November 6-7. Jacques Fiset, Montreal, will conduct a French language seminar in complete prosthodontics, November 7.

The following clinical lectures have been arranged for the Fall Clinic:

R. W. Phillips, Indianapolis, "Dental Materials;"

Donald Kepron, Montreal, "Complete Restorative Procedures;"

Gerald Weinlander, Montreal, "$N_2$ Pulpotomy;"

B. H. Wiener, Montreal, "Root Canal Sealers;"

W. J. Lambert and D. Taylor, Montreal, "Control Program – Mandibular Movement;"

H. Schilder, Boston, "Endodontics;"

L. M. Monheim, Pittsburgh, "Local Anaesthetics;"

W. F. Shaw, Hudson Heights, Quebec, "Panorex Radiography;"

René Bourcier, Montreal, "Orthodontics Prior to Rehabilitation;"

D. J. Flam, Montreal, "Orthodontics–Early Diagnosis;"

A. J. Schutz, Montreal, "The Three Appointment Examination;"

E. R. Ambrose, Montreal, "Composite Resins;"

Michael Buonocore, Rochester, New York, "Adhesive Sealing of Pits and Fissures;" and

R. G. Jones, Montreal, "Crown and Bridge."

The ladies' program includes a tour of the new Place de Radio Canada, a lunch at Ile Ste-Hélène, and an address by Mrs. Jane Douglas Lane, renowned world traveller.

For further information and preliminary programs, write Miss M. Komarnicka, 4166 St. Catherine St W, Montreal 215, Que.

## Dental Education

### Montreal university starts to train dental hygiene teachers

The Faculty of Dental Surgery at the Université de Montréal has launched a new program leading to a baccalaureate degree in dental hygiene and education. The course began in September with 15 community college (CEGEP) students and will run for two years.

In announcing the new program Dean J.-P. Lussier said, "It was very urgent to initiate this program since upon it rests the future of the profession of dental hygienists of the province of Quebec and particularly the training of dental hygienists at the CEGEP level."

## Economics

### Prosecuted mechanics paid by government agencies

Five dental mechanics in the Halifax area are said to have received a total of $5,000 from various government agencies even though they were being prosecuted for illegal practice of dentistry at the same time.

According to a report in the September 1 Toronto *Globe and Mail,* payments were made by the Nova Scotia Department of Public Welfare, the Workmen's Compensation Board, and the welfare departments of the city of Halifax and the municipality of the county of Halifax. The provincial attorney-general has launched an investigation.

**OUR MISTAKE** . . . The August issue (page 292) reported that oral surgery covered under the Quebec medicare plan cost nearly twice as much as originally foreseen. The article said that the Quebec Health Insurance Board paid out $1.9 million for these services in the first four months instead of the $1 million predicted in October 1970. This is incorrect. The Journal has now learned that the QHIB expects that oral surgery *will* cost $1.9 million instead of $1 million in 1971-72. The actual cost during the first four months was $350,-000.

## Public Health

### Health care evaluation seminar in Hamilton

The first of a new series of health care evaluation seminars will be held November 14-19 at the new Health Sciences Centre of McMaster University in Hamilton, it has been announced.

The seminars are directed to professionals, administrators and others concerned with evaluating new programs designed to improve the availability, effectiveness and efficiency of health care services. Purpose of the project is to assist personnel who wish to evaluate innovative demonstration programs in the organization and delivery of health care and who do not possess formal training in health care evaluation.

For further information, please write to Mrs. Marjorie Baskin, Seminar Coordinator, Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Ont.

## Fluoridation

### 7.3 million Canadians drink fluoridated water

As 1971 began, 7.3 million Canadians were using fluoridated water daily, according to the latest figures compiled by the CDA Bureau of Public Information.

These persons were served by 348 water systems which had been fluoridated, ranging from those which serve about 100 people to the water system serving over 2 million residents of Metropolitan Toronto. Another 126 water systems supplied water containing naturally occurring fluoride.

Percentages of population using these supplies represent 34 per cent of the population of Canada and 46 per cent of the possible total for fluoridation (those on piped drinking water).

These and other statistics appear in the latest edition of *Fluoridation in Canada as of December 31, 1970* published by the CDA Bureau of Public Information. Single copies may be obtained by writing to the Bureau of Public Information, Canadian Dental Association, 234 St. George St, Toronto 180, Ont.

## Research

### Researchers to focus on pain control

Over the next five years researchers will try to bring dental pain under control. This project is one of several in a five year projection announced by the US National Institute of Dental Research.

The investigators will delve into symptomatic pain of oral and dental disease as well as pain and anxiety associated with treatment. They will try to determine (1) the cause of conditions and mechanisms of action in pain associated with orofacial disorders; (2) the safety and acceptable techniques for administering current and future agents for reducing anxiety and pain; and (3) problems in general anaesthesia for ambulatory dental patients.

### Tooth paste study said deficient

The American Dental Association says a recently publicized US Army study which indicated some brands of popular tooth paste may cause stomatitis is inadequate and scientifically unsound.

The unpublished study by the Army Institute of Dental Research was made public by Senator Claiborne Pell. Its findings were widely publicized in Canada and the United States despite the fact that the ADA informed Sen. Pell in advance of the study's deficiencies.

In a statement issued immediately after the Senator's announcement, the ADA noted that the authors of the study themselves point to weak spots in the work: persons in the sampling were not representative of the general public; no control groups were used in the clinical studies; the patients were not followed to determine whether the stomatitis disappeared when they stopped using a particular dentifrice.

The ADA expressed fear that Sen. Pell's action "may well cause many people, including children, to stop using dentrifices which can help in preventing dental decay. This would be a serious disservice to public health."

The ADA statement on the study said that "one of the major weaknesses lies in the failure of the investigators to report, by means of acceptable scientific methods, their conclusions that a type of stomatitis was caused by certain dentifrices.

"The criteria in the study . . . are inadequate. Numerous oral and systemic diseases may present clinical symptoms similar to those described in the study."

The American Dental Association established an Adverse Reactions Program five years ago. It covers drugs, anaesthetics, dentifrices, and so forth. In the five years, the ADA has received many reports of adverse reactions to anaesthetics and drugs, but has received only three reports of adverse reactions to dentifrices.

### Neutron radiography detects invasiveness of jawbone tumours

Future dentists and physicians may be able to use a new technique in dealing with tumours of the jaws.

T. J. Boyne, of the University of California at Los Angeles School of Dentistry, recently exposed a biopsy specimen of jawbone to a neutron beam. He found that a film made of the exposure revealed the extent of tumour infiltration of the bone not shown by conventional x-ray techniques.

Extensive bone loss must usually occur before changes in bone density are visible by x-ray examination. But the neutron beam interacts with cell nuclei to reflect changes in the soft tissue before bone destruction occurs.

With information on the extent to which the cancer has invaded the soft tissues, the surgeon knows how much bone must be removed.

At present, biopsy specimens of bone must be taken from the patient and exposed to the neutron beam to produce the diagnostic film image. Levels of neutron radiation now necessary to produce this image are too high to permit its use in patients, said Doctor Boyne.

### Rats with joined intestines contribute to caries research

To help differentiate between systemic and local factors in tooth decay, University of Alabama scientists are studying rats whose intestines and abdomens have been joined in delicate surgery performed under a microscope. Their work has shown that phosphate offers protection against decay in the rat through a local action.

The surgical union of the two animals is called parabiosis and takes place before the animals' teeth have erupted so that anticariogenic treatments being tested can have a maximum effect. After the animals are weaned, they are put in a specially designed cage with a double feeder that allows the animal on the right to feed or drink only from the right feeder and its artifical twin to use only the left feeder.

One rat from each pair was given a diet containing highly purified sodium trimetaphosphate (TMP) while the other twin received the same food without the phosphate. The animals chewing TMP-containing diet had less decay than their twins.

The rat model demonstrated that protection provided to rats' teeth by TMP came from chewing (local) contact rather than through a systemic action of digested phosphate because both animals would have received digestive products absorbed from the intestine into the blood streams.

The use of individually-fed parabiosed animals should also help dental scientists studying how antibiotics or other drugs or mouthwashes would protect the teeth and the gums from disease.

## Awards and Appointments

Life membership in the Alberta Dental Association was recently conferred on four Alberta dentists in recognition of their contributions to the profession. Certificates were presented to **P. W. Reichman** of Cardston, **I. W. Dunbar** of Camrose, and **E. R. Upton** and **James Zimmerman** of Calgary. Doctor Upton has practised in Calgary for 50 years and is a former president of the Calgary and District Dental Society and the Alberta Dental Association. Doctor Zimmerman was president of the Canadian Dental Association 1963-64.

C. F. Cappa

Honourable mention was recently given to **C. F. Cappa,** London, Ont, by the Gies Memorial Award Committee for his editorial, "To the Graduating Class," which appeared in the April 1970 *Journal of the Ontario Dental Association.*

**Dean W. J. Dunn,** Faculty of Dentistry, University of Western Ontario, was elected vice-chairman of the recently formed Ontario Council of University Health Sciences which will be an affiliate of the Council of Ontario Universities. The new council's purpose is to provide more effective liaison and coordination of effort between health science faculties and schools of Ontario universities.

**M. W. Packer,** formerly associate professor and head of the Department of Periodontics, University of Alberta, has been appointed deputy director of the Division of Dental Health, US Public Health Service. Doctor Packer will assist in the administration of programs designed to increase the supply of dental manpower, and in the prevention and control of dental diseases.

## Deaths

Barber, J. D. Curtis. 72. Detroit, Michigan. Royal College of Dental Surgeons of Ontario, 1922. 23-7-71. Survived by his wife and two daughters.

Collins, Arthur Albert. Toronto. Royal College of Dental Surgeons of Ontario, 1923. 6-8-71. Survived by Olive (wife); and Richard and Philip (sons).

Dixon, Charles. 85. Regina, Sask. Northwestern University, 1911. 8-8-71. Survived by Doctor Harold (brother).

Fowlie, James R. 74. Crystal City, Man. Royal College of Dental Surgeons of Ontario, 1923. 15-7-71.

Grant, Gordon Frederick. 69. Victoria. University of Oregon, 1938. 12-7-71.

Grossman, L. D. Los Angeles. Georgetown University, Washington. Deceased spring 1971. Survived by one sister and other relatives in Irvington, NJ.

Knapp, Gordon. 73. Toronto. Royal College of Dental Surgeons of Ontario, 1924. 11-8-71. Survived by Mabel (wife); and Frank and Bill (brothers).

Morrison, James Douglas. 74. Medicine Hat, Alta. Royal College of Dental Surgeons of Ontario, 1920. 1-8-71. Survived by John (brother); Glenn (son); Mrs. G. Haidar and Mrs. W. H. Thomson (daughters); and seven grandchildren.

Paterson, Charles James. 65. Hamilton, Ont. University of Toronto, 1930. 6-8-71. Survived by Margaret (wife); Margaret (daughter); Jean (sister); and William, Hugh and Harold (brothers).

Rogers, George Franklin. 68. Huntsville, Ont. Royal College of Dental Surgeons of Ontario, 1925. 7-8-71. Survived by Dorothy (wife); Doctor Ross (brother); and Mrs. Helen Keyes (sister.)

Weadick, Daniel James. Hamilton, Ont. Royal College of Dental Surgeons of Ontario, 1912. 27-8-71. Associate member CDA.

Westwood, Charles Novello. Victoria. University of Oregon, 1916. 10-8-71.

Québec et plus directement encore la formation des hygiénistes dentaires au niveau des CEGEP".

### Le FCED accorde des bourses de $2,000 aux auxiliaires dentaires

Le Dr Sheppard Margolese, administrateur du FCED, de Vancouver, a annoncé qu'en 1971 le Fonds canadien pour l'enseignement dentaire accordera huit bourses pour encourager les auxiliaires dentaires étudiantes.

Cinq bourses, chacune d'un montant de $200, ont été versées aux écoles d'hygiène dentaire. Une bourse de $500 sera accordée à une assistante dentaire enseignante pour parfaire ses connaissances. Deux bourses de $250 iront aux étudiants en technologie dentaire du Collège George Brown à Toronto.

"Le Fonds est heureux d'aider ces jeunes gens qui deviendront bientôt des membres précieux de l'équipe dentaire," de dire le Dr Margolese.

## L'enseignement dentaire

### Québec donne des crédits pour l'éducation permanente

Le Dr Paul Dionne, responsable du Comité d'éducation permanente du Collège des Chirurgiens Dentistes de la Province de Québec vient d'annoncer que le Collège commencera, à partir du mois d'octobre 1971, à tenir la comptabilité des crédits que les dentistes accumuleront en participant à des conférences, congrès et cours universitaires.

Dans une lettre envoyée aux dentistes du Québec, le Dr Dionne fait savoir que deux équipes (une française et une anglaise) parcoureront la province pour donner des cours de pédodontie sous l'égide du Comité d'éducation permanente du Collège. Ceci est en préparation de la couverture, par l'assurance-maladie, des soins dentaires pour enfants.

La participation à des cours donnés par les sociétés dentaires locales, les congrès, les universités et les clubs d'étude permettra au dentiste d'obtenir des crédits qui lui seront décernés par le Collège sur présentation d'un certificat de présence. Chaque dentiste québécois devra obtenir un minimum de 12 crédits par an et le Collège maintiendra un profil de chaque praticien.

Un certificat-questionnaire devra être complété et signé après chaque cours et renvoyé au Collège. Les certificats seront distribués lors de la conférence ou peuvent être obtenus du Collège.

La participation au congrès national ou provincial vaudra trois crédits; les cours du Collège: trois crédits; un cours universitaire de trois jours: cinq crédits; la participation à un club d'étude: deux crédits.

Les spécialistes auront droit à trois crédits pour chaque assemblée de leur société et à cinq crédits pour un cours universitaire.

N.D.L.R. — Le Journal a appris que ces renseignements ont été transmis prématurément et que le problème sera discuté au Collège des Chirurgiens-Dentistes de la Province de Québec. (Ed)

### Formation de professeurs en hygiène dentaire à l'Université de Montréal

La Faculté de chirurgie dentaire de l'Université de Montréal a mis sur pied un nouveau programme conduisant à un Baccalauréat en hygiène et en enseignement dentaire. Le cours a débuté en septembre avec 15 étudiantes des CEGEP et durera deux ans.

En annonçant la nouvelle, le Doyen J.-P. Lussier a déclaré: "Il était urgent d'élaborer un tel programme puisque c'est sur lui que repose l'avenir des hygiénistes dentaires de la province de

### Les brochures sur les tests d'aptitudes pour 1972 sont prêtes

L'Association Dentaire Canadienne vient de publier de nouvelles brochures, en français et en anglais, donnant tous les détails sur les tests d'aptitudes dentaires pour 1972. Ce programme de l'ADC s'adresse à tous ceux qui veulent entrer en première année d'une faculté dentaire canadienne. On trouve dans ces brochures des renseignements sur les prérequis nécessaires aux études dentaires, une description des études professionnelles, le programme TAD, les dates où l'on peut passer ce test (les 7 et 8 janvier et les 24 et 25 mars 1972) ainsi que les centres où il se donne, les formalités d'admission ainsi que les frais encourus. Ce programme est administré par le Conseil de l'enseignement de l'ADC.

Ces tests d'aptitudes dentaires que les facultés dentaires canadiennes recommandent ou exigent aident à déterminer les chances de succès que le postulant aura au cours de ses études dentaires. D'ailleurs les résultats de ces tests, ainsi que d'autres documents opportuns servent à accepter la demande de l'étudiant dans une faculté dentaire.

On peut se procurer ces brochures TAD en écrivant à "Test d'aptitudes dentaires", Association Dentaire Canadienne, 234 rue St-Georges, Toronto 180, Ont.

## L'économie

### Le coût de la chirurgie buccale est estimé à $1.9 millions pour 1971-72

Un porte-parole de la Régie de l'assurance-maladie du Québec a déclaré que "le coût des services de chirurgie buccale est estimé à $1.9 millions comparativement à $1.0 million prévu en octobre 1970". Cette estimation revisée s'applique à l'exercice financier 1971-72 et non aux quatre premiers mois de fonctionnement du régime de l'assurance-maladie tel que le Journal l'avait publié dans son numéro du mois d'août (p 297).

### Seul le Québec assumera le coût des soins dentaires

Le numéro du mois de juillet du Journal annonçait l'adoption par l'Assemblée nationale du Québec du projet de loi 69 qui permettra la couverture des soins dentaires pour les enfants (voir p 258). Ce communiqué spécifiait également que la moitié des frais serait assumée par le gouvernement fédéral, en vertu d'ententes déjà négociées entre Ottawa et les provinces.

Depuis lors, on nous a fait savoir que les soins dentaires administrés dans un cabinet privé ne sont pas compris dans aucun programme à frais partagés et que seul le gouvernement du Québec devra donc assumer le coût de ces soins.

Selon le *Journal des Débats* (Assemblée nationale du Québec, vol 11, no 56, p 2415) le ministre des Affaires sociales aurait déclaré: "Présentement, des discussions se poursuivent au niveau technique pour en arriver à l'établissement d'une nouvelle formule de participation qui, de façon générale, devra être basée sur des paiements per capita avec divers ajustements, divers contrôles".

## Les organismes dentaires

### Programme du Fall Clinic

Deux séminaires préliminaires précèderont le Fall Clinic annuel du Montreal Dental Club qui aura lieu à l'Hôtel Reine Elizabeth du 8 au 10 novembre.

Paul Jacobi de Neenah, Wisconsin, parlera de gestion professionnelle les 6 et 7 novembre. Jacques Fiset, de Montréal, dirigera un séminaire en français sur les prothèses complètes le 7 novembre.

Voici la liste des conférences:

R.W. Phillips, Indianapolis, "Les matériaux dentaires";

Donald Kepron, Montréal, "Techniques complètes de restauration";

Gerald Weinlander, Montréal, "Pulpotomie au N2";

B.H. Wiener, Montréal, "L'obturation des canaux radiculaires";

W.J. Lambert et D. Taylor, Montréal, "Programme de contrôle — Mouvement mandibulaire";

H. Schilder, Boston, "Endodontie";

L.M. Monheim, Pittsburgh, "Anesthésiques locaux";

W.H. Shaw, Hudson Heights, Qué, "Radiographie au Panorex";

René Bourcier, Montréal, "L'orthodontie avant la réhabilitation";

D.J. Flam, Montréal, "L'orthodontie – diagnostic précoce";

A.J. Schultz, Montréal, "L'examen en trois rendez-vous";

E.R. Ambrose, Montréal, "Les composites";

Michael Buonocore, Rochester, New York, "Les vernis d'obturation pour les puits et les fissures";

R.G. Jones, Montréal, "Couronnes et pont".

Le programme des activités féminines comprend une visite du nouveau site de la Place de Radio Canada, un déjeuner à l'Ile Ste-Hélène, et une allocution de Mme Jane Douglas Lane, connue pour ses voyages autour du monde.

Pour de plus amples informations, écrivez à Mlle M. Komarnicka, 4166 Ste-Catherine O, Montréal 215, Qué.

## Chronique internationale

### Spécialistes canadiens en prothèses invités à Las Vegas

C'est à l'Hôtel Hilton de Las Vegas au Nevada que se déroulera le congrès international de prothèses dentaires, du 26 au 28 octobre 1972. L'American Prosthodontic Society, en collaboration avec la Federation of Prosthodontic Organizations, agira à titre d'hôte de ce congrès.

Pour de plus amples renseignements à ce sujet, écrivez à l'APS, 919 N Michigan Ave, Chicago, Ill 60611, USA.

## L'hygiène dentaire

### Le Dr G. Pelletier aux Affaires sociales

Le Dr Gilles Pelletier vient de prendre la direction du service de la santé dentaire au sein du ministère des Affaires sociales du Québec. Ce service aura pour but de promouvoir auprès de la population diverses mesures de prévention, tel le recours à la fluoration et l'examen de dépistage. Le communiqué du ministère indique aussi qu'il verra à la formation du personnel.

Le service de la santé dentaire pourra aussi contribuer aux travaux de recherche en matière de santé dentaire et à l'évaluation du rendement des mesures de préventions et des programmes mis en oeuvre dans ce secteur. Ce service travaillera en étroite collaboration avec les secteurs de la médecine préventive du ministère.

Avant sa nomination au ministère, le Dr Pelletier était membre du corps enseignant de la Faculté de chirurgie dentaire de l'Université de Montréal et avait servi comme responsable du Comité des publications de l'Association des Chirurgiens-Dentistes du Québec.

## La recherche

### De nouveaux fluorures topiques seraient plus efficaces

Des chercheurs ont découvert trois agents qui offriraient une meilleure protection contre la carie que le fluorure de sodium généralement utilisé dans l'application topique de fluorure.

Le tétrafluorure de titane, l'un de ces produits, diminue la solubilité de l'émail et "vitrifie" les surfaces d'émail, selon Sheila Mundorff de Rochester, NY.

Vera Caslavska, du Forsyth Dental Centre de Boston, signale que le fluorure d'ammonium acidulé se dépose dans les dents beaucoup mieux que le fluorure de sodium. Le microscope électronique a révélé une pellicule de matériau contenant du fluor sur la surface des dents traitées à l'aide de fluorure d'ammonium.

Un troisième chercheur, J.R. Mellberg, du Kendall Research Centre de Barrington, en Illinois, signale pour sa part que l'emploi d'une solution de silicofluorure d'ammonium multiple par trois ou quatre la quantité de fluor déposée dans l'émail dentaire par rapport aux solutions actuellement utilisées.

### Comment traiter une plaie pénétrante dans le palais d'un enfant

Selon un chercheur britannique, il ne faut pas suturer une plaie pénétrante dans le palais d'un enfant. On doit éviter cette opération à tout prix car l'enfant est généralement effrayé et mal préparé. C'est l'opinion de B. S.

Crawford, de Sheffield en Angleterre. Dans un article de l'exemplaire de juillet de *Dental Abstracts* publié par l'Association Dentaire Américaine, le Dr Crawford indique qu'une plaie pénétrante au palais est souvent causée par un accident. Généralement l'enfant trébuche avec un bâton dans la bouche.

La pointe du bâton se heurte au palais dur, sur lequel elle glisse, causant ainsi une lacération qui va jusqu'à l'os. Au bord postérieur du palais osseux, le reste de la force est alors appliqué au palais mou qui est d'ordinaire perforé et quelquefois partiellement décollé de l'os qui le supporte.

La plaie peut quelquefois être nette et sans bavure, mais la plupart du temps elle est considérable et le palais est en lambeaux. Cette plaie s'arrête alors dans la cavité nasale.

D'abord le saignement est immédiat, mais il s'arrête spontanément, et la perte de sang est à vrai dire insignifiante. Si l'artère palatine est au contraire déchirée, la perte de sang sera torrentielle, ajoute-t-il.

Le Dr Crawford a expliqué que l'on devrait éviter la suturation immédiate, parce que la plupart de ces plaies se cicatrisent parfaitement d'elles-mêmes et que les sutures peuvent causer des dommages et retarder la guérison.

Le pronostic est tellement bon qu'il est souvent inutile d'envoyer le patient à l'hôpital, et l'usage d'antibiotiques ne saurait être recommandé comme mesure de précaution, a-t-il ajouté.

Dans le cas peu fréquent où l'artère palatine a été atteinte, on recommande une pression continue des doigts sur le centre de l'hémorrhagie; on recommande aussi de placer le patient de telle sorte qu'il puisse continuer à respirer convenablement, jusqu'à ce qu'une anesthésie puisse lui être administrée.

La mise en place d'une sonde endotrachéale peut être difficile à cause de la quantité de sang; on peut à la place effectuer deux sutures simultanées. La partie la plus proche de l'artère palatine est tenue à l'aide d'une pince hémostatique. On utilise le même procédé pour une opération de fissure palatine, d'expliquer le Dr Crawford.

On fait pénétrer la pointe de la pince doucement dans le trou palatin postérieur et le vaisseau est tortillé de façon à lui permettre de se rétracter dans le canal osseux, a-t-il ajouté.

## Cinq groupes qui ne doivent pas recevoir d'implants prothétiques

Un chirurgien buccal a déclaré devant l'Association Dentaire de l'Ontario le 18 mai que les alcooliques, les personnes émotivement instables et celles qui souffrent de bruxisme ne devraient pas recevoir d'implants prothétiques.

Le Dr A. Norman Cranin, directeur de la section de chirurgie dentaire et buccale au Brookdale Hospital Centre de Brooklyn, NY, a nommé deux autres groupes de patients dans le même cas.

Les premiers sont ceux qui supportent mal un corps étranger dans la bouche; les seconds sont ceux qui, habitués à avoir des dents manquantes, supportent mal que l'espace vide soit comblé.

Les implants durent 13.7 ans, mais l'absence de complications lors de l'opération ne signifie pas que celle-ci est une réussite.

Le Dr Cranin pense que l'intervention ne peut être considérée comme réussie que lorsque les patients n'ont pas souffert de troubles majeurs tels que douleur, enflure ou saignement pendant une période de cinq ans après l'implantation.

## Les chercheurs tenteront de résoudre le problème de la douleur

D'ici cinq ans les chercheurs se proposent de trouver une solution à la douleur dentaire. C'est l'un des nombreux projets annoncés par l'Institut national de recherche dentaire des EU.

Les enquêteurs approfondiront le domaine de la douleur occasionnée par les maladies buccales et dentaires de même que la douleur et l'anxiété qui accompagnent les traitements. Ils essaieront de déterminer (1) l'ensemble des conditions et des mécanismes qui déclenchent la douleur dans les cas de troubles bucco-faciaux; (2) quelles techniques sont à la fois acceptables et sûres lorsqu'il s'agit d'administrer les drogues qui doivent réduire l'anxiété et la douleur; et (3) les problèmes reliés à l'anesthésie générale pour les patients dentaires ambulatoires.

## La radiographie au neutron détecte les tumeurs envahissantes de l'os maxilaire

Dentistes et médecins de l'avenir seront en mesure d'utiliser une nouvelle technique pour déceler les tumeurs des mâchoires.

T.J. Boyne, de la faculté dentaire de l'Université de Californie à Los Angeles a récemment exposé un spécimen biopsique d'un os maxilaire à un rayon de neutron. Il a découvert que la pellicule ainsi obtenue révélait toute l'étendue de l'infiltration de la tumeur de l'os, ce que ne montraient pas les pellicules conventionnelles de rayons X.

D'ordinaire une diminution sensible de l'os doit se produire avant que les changements dans la densité de l'os ne soient visibles au rayon X. Mais grâce à l'interaction du rayon au neutron sur les noyaux cellulaires les changements sont visibles dans les tissus mous, avant même que la destruction de l'os n'apparaisse.

Connaissant l'étendue du cancer qui a envahi les tissus mous, le chirurgien sait combien il faut enlever d'os.

Pour le moment les spécimens biopsiques de l'os doivent être prélevés sur le patient et exposés au rayon au neutron pour donner l'image sur pellicule du diagnostic. De fait les niveaux de radiation du neutron nécessaires à produire cette image sont trop élevés pour permettre cette technique directement sur le patient, d'ajouter le Dr Boyne.

## Les métaux lourds sont-ils liés à la carie dentaire?

Une étude effectuée à Manning, localité située près de Rochester, New York, laisse penser qu'il existe un lien entre les fortes concentrations en plomb, zinc at cadmium, et l'éruption retardée des dents et une forte incidence de caries.

La teneur des trois métaux dans le sol et les plantes de la localité de Manning est particulièrement élevée. Des échantillons d'eau prélevés en 1968 révélaient une teneur de 10ppm de ces métaux. Une comparaison a été effectuée avec un village semblable de l'état de New York, East Oakfield, situé sur un sol différent qui ne contient que 3ppm des trois métaux lourds. Les deux villages n'ont que peu de fluor dans leur service d'eau.

Le nombre de surfaces cariées et l'âge moyen d'éruption des dents furent notés chez plusieurs groupes (trois-six, sept-10, 11-19). Le nombre d'enfants (23 à Manning, 19 à East Oakfield) était trop faible pour en tirer des statistiques. Cependant, d'une façon régulière, le taux de caries était plus élevé et l'âge d'éruption plus retardé à Manning.

## L'émail traité au laser résisterait à la carie

Lors de sa réunion de mars à Chicago, l'Association internationale pour la recherche dentaire a notamment examiné la possibilité d'empêcher définitivement la carie au moyen d'un seul traitement au laser.

Le Dr R. H. Stern de Los Angeles a expliqué aux participants comment certains fragments d'émail, provenant de dents fraichement extraites, furent traités au laser tandis que d'autres ne l'étaient pas. Les fragments furent ensuite placés dans les petites fenêtres d'un pont en or qu'un chercheur de la faculté dentaire de l'Université de Cali-

fornie à Los Angeles, garda dans la bouche.

Les morceaux d'émail étaient recouverts d'une mince feuille d'or qui les abritait de la brosse à dents tout en emprisonant les débris alimentaires et en facilitant la prise de la carie.

Après quatre semaines, les échantillons non-traités laissaient voir l'aspect crayeux typique du début de la carie tandis que les échantillons traités ne portaient aucun signe de carie.

Par comparaison, d'autres essais furent accomplis selon la même technique, en remplaçant le laser par un traitement au fluor. Les échantillons dentaires traités au fluor se comportèrent aussi bien, sans donner de signe de carie.

Les chercheurs avaient auparavant étudié in vitro l'action du laser sur l'émail des dents humaines. Ils observèrent que le laser à l'anhydride carbonique modifie l'émail qu'il couvre d'une sorte de vernis, sans que sa chaleur soit suffisante pour endommager la pulpe. Cette modification de l'émail pourrait suffire à empêcher l'acide et les bactéries de la bouche à pénétrer dans l'émail pour y engendrer le processus de la carie, selon le Dr Stern.

## Une endotoxine bactérienne pourrait provoquer la perte osseuse

Selon les dernières recherches accomplies aux universités de Buffalo et de Rochester, New York, la résorption osseuse durant la maladie périodontique pourrait être due à une endotoxine bactérienne. Puisque la perte osseuse devient plus grave dans la maladie périodontique à mesure que les bactéries et leurs produits augmentent dans le cul-de-sac gingivo-dentaire, les savants décidèrent de vérifier les effets de l'endotoxine sur de l'os en bouillon de culture.

Les résultats montrent qu'une quantité l'endotoxine aussi faible que 0.1 µgm par millilitre de liquide de culture provoquait une nette résorption osseuse. Des quantités plus fortes d'endotoxines entraînaient des détériorations plus fortes. Mais lorsque la teneur atteignait ou dépassait 10µm/ml, la résorption diminuait, sans doute parce que ce produit tuait les cellules osseuses.

Ces études démontrent une fois de plus le rôle de *Bacteroides melaninogenicus,* organisme buccal, dans la maladie périodontique, et elles laissent penser que l'endotoxine peut être un instrument précieux dans l'étude de la résorption osseuse. La puissance et la stabilité biologique de l'endotoxine pourrait permettre aux savants de déterminer, au niveau moléculaire, par quel procédé les cellules osseuses se différencient en ostéoclastes spécialisés. De telles expériences pourraient apporter de la lumière sur la spécialisation cellulaire en général et sur la détérioration osseuse qui se produit dans la maladie périodontique ou dans l'ostéoporose.

## Guatémala: un régime qui calcifie la plaque dentaire et réduit la carie

Une étude effectuée dans deux villages du Guatémala a démontré que la carie dentaire se manifeste moins lorsque les dépôts dentaires sont minéralisés.

Des chercheurs du Massachusetts Institute of Technology ont effectué une enquête alimentaire et dentaire chez 164 écoliers du cours primaire de deux localités, afin de déterminer les facteurs qui pourraient expliquer une relation apparente entre l'abondance de dépôts calcifiés sur les dents et la rareté de la carie, relation qui s'observe à la fois sur des crânes mexicains anciens et chez certains Indiens du temps présent.

On a analysé statistiquement d'une part l'occurrence de dépôts minéralisés (calculs et plaque pierreuse) sur les surfaces linguales des premières molaires supérieures et sur les surfaces buccales des premières molaires inférieures, et d'autre part, l'occurrence de la carie dans les sillons et puits sur les mêmes côtés de ces dents. Les chercheurs ont observé que l'absence de carie était étroitement associée à des dépôts hautement minéralisés.

Les régimes contenaient approximativement la même quantité de sucre et tous deux manquaient de lait et de produits laitiers. Un village consommait surtout des aliments indiens et en particulier du maïs sous forme de tortillas riches en calcium et en phosphore, alors que les villageois occidentalisés consommaient beaucoup plus de pain fait de blé et contenant moins de calcium et de phosphore.

Les données laissent penser que lorsqu'il y a suffisamment de calcium et de phosphore pour minéraliser les dépôts locaux, les effets cariogènes des produits bactériens contenus dans la plaque sont réduits.

## Un nouveau syndrome: l'hypoplasie faciale

En étudiant des enfants atteints de difficultés de croissance et de la langue, des chercheurs de Washington ont peut-être découvert un nouveau syndrome comprenant, entre autres, des déficiences du visage et du crâne. La similarité et l'agencement des anomalies dans chacun des enfants révèlent un nouveau groupe de symptômes ayant une origine commune. L'hérédité peut jouer un rôle dans l'hypoplasie faciale, mais il se peut qu'un grand nombre de ces idiosyncrasies soit dû à des troubles subis au début de la grossesse.

Tous les enfants semblaient normaux à la naissance mais souffraient en bas âge de nombreuses infections, pneumonie comprise. Tous avaient un faible appétit. Les nourrissons éprouvaient aussi de la difficulté à se nourrir, caractérisée par la régurgitation de la nourriture par le nez.

Les chercheurs pensent que ce dernier symptôme pourra à l'avenir conduire les parents, dentistes et médecins à dépister et à traiter cette maladie dès ses débuts.

Chaque enfant démontrait du retard pour parler; les mots étaient nasalisés et l'articulation difficile à cause d'une division palatine sous-muqueuse. Une telle fissure n'est souvent pas détectée dans la première enfance car elle n'est pas visible mais seulement perceptible au toucher.

Les enfants accusaient un retard prononcé et régulier de la croissance physique depuis la première enfance, et l'âge squelettique traînait derrière l'âge chronologique dans tous les cas.

Le menton était en retrait, les pommettes basses et petites, une béance prononcée existait. Des défauts des membres étaient aussi fréquents.

Lors d'épreuves sensorielles, il fallut multiplier par 10 la concentration des substances douces, aigres, amères et salées, pour que les enfants les reconnaissant. Ils décelèrent difficilement diverses odeurs agréables et désagréables. Le sens du toucher était également affaibli dans la bouche et les mains.

## Deux mécanismes antibactériens dans la salive

Selon deux chercheurs de Boston, la salive stérile des glandes parotides possède deux systèmes chimiques distincts capables d'inhiber dans la bouche des organismes comme le *lactobacillus casei.*

Le premier système fonctionne en présence d'air ou d'oxygène, l'autre en l'absence d'oxygène, comme dans les culs-de-sac gingivo-dentaires par exemple.

La salive, qui ôte et dilue mécaniquement les bactéries et leurs produits, exerce en outre une action antibactérienne bien connue et que l'existence de ces deux mécanismes pourrait expliquer.

Tous deux utilisent le thiocyanate, qui est normalement présent dans la salive. Le système aérobie comprend du peroxyde d'hydrogène et une enzyme peroxydative. Il est inhibé par une enzyme, la catalase. Par contre, la catalase n'inhibe pas le mécanisme

anaérobie. Celui-ci pourrait être très efficace contre les bactéries buccales qui évitent la présence d'oxygène et contribuent peut-être aux affections du parodonte. Le premier serait plus efficace contre les organismes cariogènes.

### Une analyse de la salive peut révéler l'intoxication par une drogue pour le coeur

Des chercheurs du Columbia-Presbyterian Medical Centre de New-York ont découvert qu'une simple analyse du taux de potassium dans la salive entière peut indiquer si un cardiaque traité à l'aide de digitaline présente une réaction toxique à cette drogue.

Un dentiste, le Dr Stephen Wotman, qui travaille avec trois collègues, a déclaré que la digitaline que l'on administre pour maîtriser les arythmies cardiaques, entraîne parfois une intoxication et doit alors être diminuée ou supprimée et remplacée par d'autres traitements.

Les signes cliniques d'une attaque cardiaque sont semblables à ceux de l'intoxication digitalique et il faut déterminer si le patient doit recevoir plus de digitaline ou en a déjà trop reçu, ce qui peut être difficile.

Le Dr Wotman vient de déclarer, lors d'une réunion scientifique de l'American Heart Association, que les taux de potassium dans la salive s'élèvent chez tous les patients qui reçoivent la drogue, mais qu'ils sont beaucoup plus importants dans les cas d'intoxication que dans les autres.

Au cours de l'étude, on a analysé la salive au moyen de la spectrophotométrie par absorption atomique, mais il est possible d'utiliser les épreuves de photométrie à flamme dont la plupart des hôpitaux disposent pour les analyses du sang.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 août 1971:

*Fonds à revenu fixe* $11.935;

*Fonds d'actions ordinaires* $23.873.

L'avoir total (valeur marchande) du régime se montait à $10,672,026.70.

Au cours du mois précédent, les transactions, achats et ventes, ont été les suivantes: achat 1,500 actions de Dome Mines, 800 actions de Southam Press et 5,000 actions de Union Gas; vente 9,000 actions de Acklands Ltd, 3,500 actions de Dustbane Enterprises et 9,500 actions de Weldwood Ltd "Rights".

Le paragraphe 79B de la loi régissant l'impôt sur le revenu autorise des contributions non imposaables à un programme de retraite personnelle, représentant jusqu'à 20 p.c. du revenu, avec un maximum de $2,500.

La Compagnie Trust Royal, qui gère le Régime d'épargne-retraite de l'ADC offre deux sortes de placements distincts: un fonds à revenu fixe et un fonds d'actions ordinaires. Les contributions peuvent être faites entièrement ou en partie au(x) fonds que choisit le contributeur. Il peut faire des transferts entre les fonds sans payer d'amendes.

Le fonds à revenu fixe, qui se compose de bons du trésor, d'obligations, d'actions privilégiées et d'autres sécurités à revenu fixe, offre un très bon revenu avec un risque très faible. Le fonds d'actions ordinaires, qui se compose d'actions ordinaires canadiennes, américaines et étrangères soigneusement choisies, a comme objectif principal l'augmentation du capital.

L'adhésion au programme ou le retrait n'entraîne aucun paiement supplémentaire, ni commission.

Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

*Perruques et nationalisation* – Les Services nationaux de Santé fonctionnent en Angleterre depuis près de 20 ans et l'expérience acquise dans ce pays devrait nous servir à nous, du Québec, qui glissons insensiblement vers un quelconque système d'assurance-santé. Peut-on assurer la santé? Doit-on s'assurer contre la maladie? Le système qui nous sera offert sera-t-il obligatoire, universel, libre ou partiel? Qui pourrait savoir?

Si nous en revenons au problème de nos amis anglais, ceux du United Kingdom, nous avons appris par un éditorial du British Medical Journal que les N.H.S. sont préoccupés par le problème des perruques. Normalement la prescription d'une perruque devrait être limitée aux personnes souffrant de "calvitie causée par une dystrophie congénitale de la peau, d'alopécie totale, d'alopécie areata, de cicatrices importantes secondaires à un traumatisme, à la radiothérapie, à un état inflammatoire et enfin au traitement d'une maladie causant une calvitie temporaire mais de longue durée". Dans un pays démocratique et respectueux des traditions, il ne serait pas question de mettre en doute la valeur impérative d'une prescription médicale et il semble qu'en Angleterre, la prescription d'une perruque soit exécutoire, plus particulièrement si cette ordonnance est signée par un spécialiste, en l'occurrence un dermatologiste. Ainsi on prescrit une perruque aux grands-mères qui ont le cheveu rare et aux hommes qui tolèrent mal d'avoir ce que mon ami Ferron qualifie de "chef quelque peu déplumé".

Un peu partout en médecine, lorsqu'on recommande le port d'une prothèse, il ne s'agit que d'un seul appareil. Lorsqu'on prescrit une perruque, le N.H.S. doit en donner deux en plus d'un manuel intitulé "Taking Care of Your Wig". Les beautés d'aujourd'hui comprendront vite pourquoi on doit avoir deux perruques puisque des cheveux postiches doivent être apportés régulièrement au coiffeur pour être lavés, frisés, peignés, coiffés. Si on porte une perruque, il faut la nettoyer et la repeigner au moins une fois par mois; si cette prothèse est jugée essentielle, il n'est pas question de ne pas la mettre un jour parce qu'elle est au séchage car ceci causerait beaucoup de confusion dans l'entourage du "malade". Les Anglais sont aussi fort honnêtes et les perruques des N.H.S. sont faites de vrais cheveux et non d'une imitation de cheveux en nylon-acrilan qui ne coûterait qu'une dizaine de dollars chacune. Méfions-nous des imitations qui pourraient causer des dermatites allergiques! Le coût annuel des perruques prescrites en Angleterre représente une dépense de plus d'un million de livres sterling. On ne nous parle pas, dans cet éditorial, des dépenses pour d'autres prothèses qui doivent constituer un poste de plusieurs millions par année.

Nous, au Québec, nous pensons à l'assurance-santé, à la rémunération des gardes, à l'acte médical, aux vacations, au régime salarial. Nous pensons beaucoup sans savoir exactement dans quoi nous nous engageons. L'an dernier, il s'agissait encore d'un avenir lointain; aujourd'hui à quelques mois de l'installation du plan, tout reste vague, incertain, inquiétant, politique. Nous entendrons de beaux discours et les chauves se réjouiront peut-être. – Jean-Marc Bordeleau, L'Information médicale et paramédicale.

# Principles and utilization of body section radiography in dentistry

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*Body section radiography is of great value to dentists when used for pathology diagnosis. The techniques have been considerably modified since the procedure was first introduced by Paatero. The authors stress that the most important factors in obtaining successful results with the technique are a thorough understanding of head and neck anatomy and radiology.*

*Une radiographie du corps en coupe constitue un document important pour le dentiste lorsqu'il veut établir un diagnostic pathologique. Les techniques ont été beaucoup améliorées depuis la première utilisation qu'en fit Paatero. Les auteurs soulignent les facteurs les plus importants qui détermineront la réussite des résultats obtenus avec cette technique. Ce sont une excellente compréhension de l'anatomie de la tête et du cou ainsi qu'une bonne connaissance de la radiologie.*

The development of body section radiography has been a valuable and almost indispensable adjunct to pathology diagnosis in dentistry. The procedure has been given many different names. Paatero coined the term "orthopantomography." Other descriptive terms are laminagraphy, planigraphy, tomography, stratigraphy and vertigraphy.

This article discusses the basic principles of body section radiography and evaluates its current use. It stresses the problem of positioning the patient in the sectional field of the x-ray machine. Also reviewed are some of the latest improvements since Paatero's pioneering work in Finland.[1-8]

To understand body section radiography it is essential to appreciate how it differs from conventional two dimensional radiography.[9-13]

## Principles

In conventional radiography the point source, the object and the film are held still during the radiation exposure. All points in the three dimensional object throw shadows and are projected and superimposed on the film.

If the point source moves sideways during the exposure but the object and film remain still, all points in the object throw moving shadows on the film which are consequently blurred during exposure. The least blurred is an object point in contact with or near to the film surface.

If the film moves sideways in exactly the opposite direction and at the same speed as the point source, the least blurred points within the object are those in a plane half way between the source and the film. This is the procedure used in body section radiography.

If the point source and film move at different speeds but in exactly opposite directions, those points nearer or further from the half way mark between point source and film are the least blurred. These points stand out against the blurred points so that a well-defined shadow of a thin layer of deep structures can be reproduced on the film without any confusing overlying shadows.

Different speeds of movement of film and source are the usual mechanical procedures used in body section radiography, the depth of the cut being determined by the machine's guiding mechanisms.

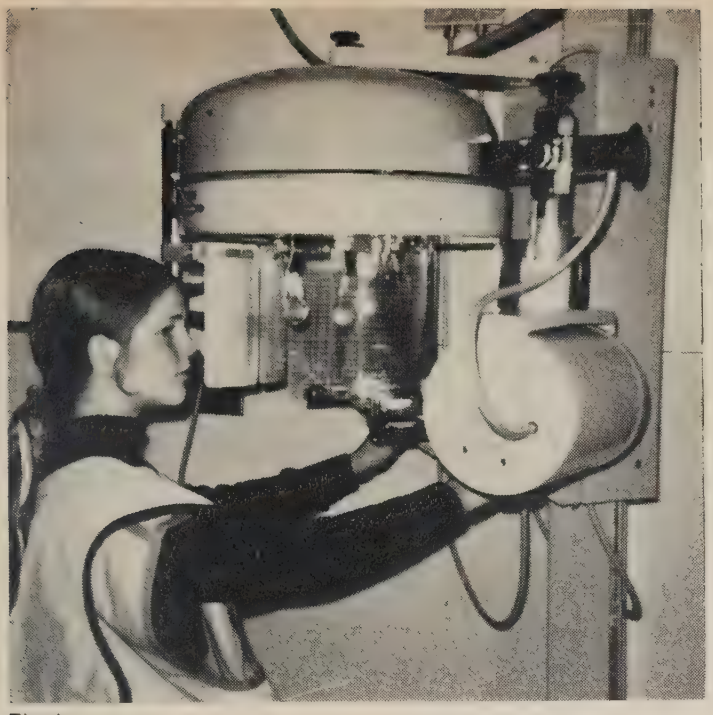


Fig 1

The usual clinical method of obtaining deeper or shallower sections of the deeper structures is by moving the patient to a different position between the source of radiation and the film, rather than by altering the track mechanism,[14, 15] so that the part under investigation is placed in the narrow and sharply defined section of the track.

## Types of machines

Many body section radiography machines have a plane section but some are arranged to provide a curved section. These are used in dentistry to obtain a section through the dental arches. The curved part of the body section in space is made to approximate the curve of the average dental arch. When the patient's jaw is correctly positioned in the machine, a radiograph of all the teeth and supporting structures is obtained on one film.

More than five different body section machines are available for use in dentistry at present. Their main differences are in the shape of the body sectional cut. One machine uses two similar sections which approximate the shape of the right and left sides of the jaws. This requires an interruption in the midline between the right and left exposures. During this interruption the patient is moved approximately two inches to the opposite side.[16]

Several machines use three rotation centres and provide a continuous series of three body section cuts — a right and left buccal section and an incisal section. By means of a special mechanism the axis is gradually moved to produce one continuous radiograph of the jaws between and including the mastoid areas. The right and left buccal sections have rotation centres on the opposite side of the jaw to that which is being radiographed in the region behind the last molar tooth. The rotation for the anterior segment is in the midline, 30mm behind the incisor teeth.[9, 10, 17]

## Size of cut

Most body section machines have unalterable tracks and produce only one size of sectional cut. This affects the image produced for, with jaws larger or smaller than the cut, the image is blurred, the sharply defined sectional cut passing outside the substance of the jaws through featureless areas.

The present machines either have tracks designed to give a sectional cut of average dimensions of the jaws of one or other markedly different ethnic groups, or else they are designed on pure geometric data which only approximate the shape of the dental arches. As a result one type of machine could be more efficient than another for a particular patient. Paatero's[15] earliest designs provided a degree of control which allowed for variation in size and shape of the individual's dental arches.

Due to the many variations in the shape of the patients' jaws, few lie entirely within the limited sectional cut of any of the set track machines. Parts of the jaws on most radiographs are therefore distorted. Points lying outside the section and away from the circle of rotation are blurred and reduced in horizontal dimension compared with points within the section; points inside the sectional cut nearer the centre of rotation are also blurred but comparatively enlarged. Enlargement and reduction factors vary from one part of the jaw to another because of variation in anatomical shape and position.[3, 13, 18-20]

## Interpretation of radiographs

Body section radiographs must be interpreted in a rather special way. They cannot be compared with radiographs taken by the conventional intra- or extra-oral techniques. Every clearly defined landmark on a body section radiograph has to be interpreted as lying within the range of the tomographic section, excluding all other landmarks outside the section which are blurred. On the conventional radiograph these other landmarks are sharply defined and superimposed.

To interpret body section radiographs it is essential to know that every body section unit has its own particular shape and position of cut. The three dimensional body section is determined by the radiation source distance, film position, alignment of object, distribution of rotation centres within the machine, and speed of film and tube movement.[19]

Many investigators have sought to improve the limitations of the equipment by modifying the geometric shape of the tracks by controlling the velocity, radiation source and film holder, and by evolving different types of film cassette and intensifying screens.

To position the patient correctly in the sectional field of the machine, it is necessary to know the exact points in space of the body section cut and its dimension. The part to be radiographed must then be correctly positioned in the body section and held immobile during the exposure cycle.[19-26]

Fig 2

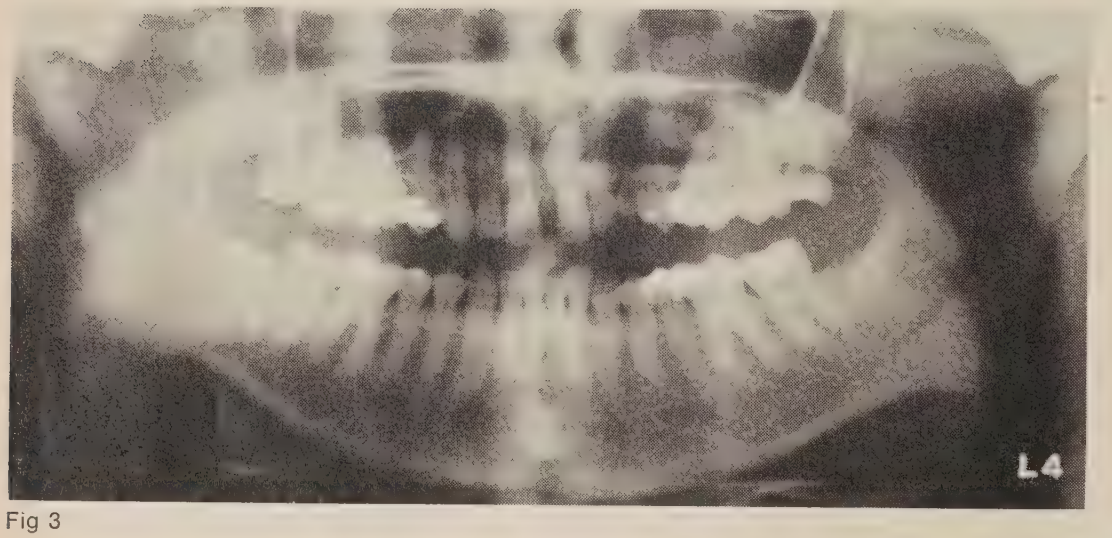



Fig 3

Fig 4

## Methods

Multi-pointed three dimensional models are available which can be accurately repositioned in the machine. Each point on the model has a different shape and can be identified on the radiograph. A body section radiograph was taken of such a model and, by the relative definition of the various points, the exact spatial dimensions of the body section cut were accurately determined under working conditions.

We fabricated a chin support with an outline of the anterior portion of the body section indicated in two dimensions; a bite fork was also made which forms, with the chin support, a three dimensional indicator of the body section cut (Fig 1). This simple improvement extends the capabilities of the body section machine considerably as it produces better quality films which are easy to interpret and reproduce (Fig 2-7).

Fig 5

Fig 6

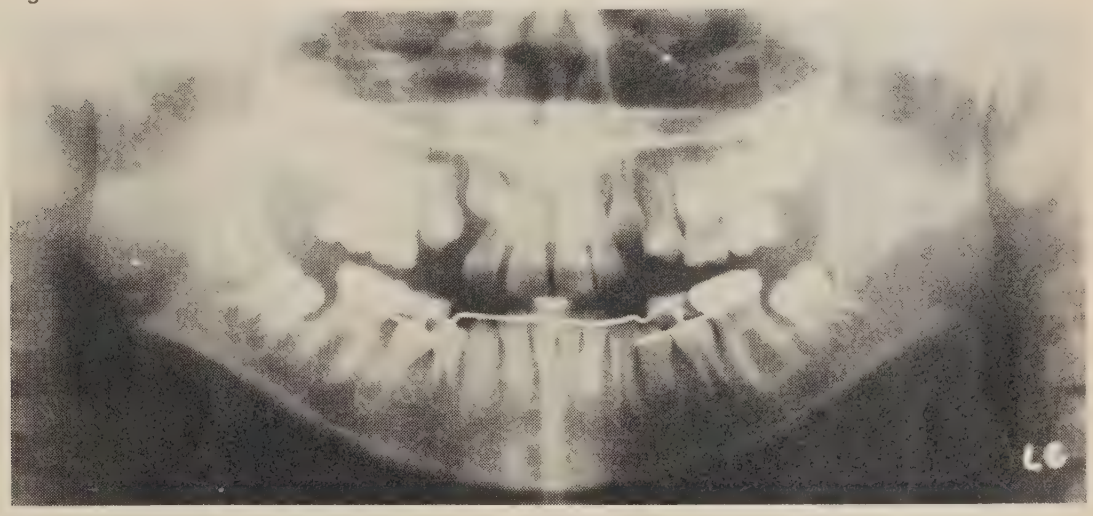
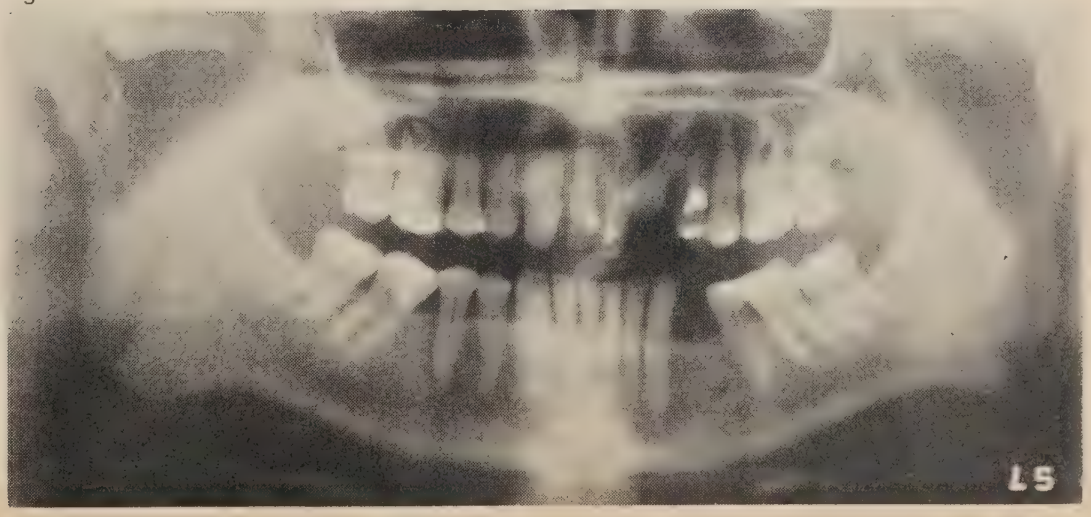



Fig 7



## Image distortion

Image distortions in body section radiography are caused by : (1) the section differing in shape to that of the jaws being radiographed; (2) the fixed angle of the radiation source; (3) the asymmetry of the jaws being radiographed; (4) improper positioning of the jaws within the body section; (5) movement of the patient during the prolonged exposure cycle (13-20 seconds); and (6) variation in speed of the tube, film and rotation mechanism.

Distortions caused by the shape of the fixed section being different from that of the jaws can only be overcome by incorporating an adjustable track mechanism in the machine, such as Paatero used in his original apparatus, but which was later simplified and omitted for commercial production.

The thickness of the body section is significant for, when this is as thin as 3.0mm, most of the jaw tissues fall outside the section and are blurred. This gives the false impression that the entire section is out of focus.

The thickness of the section can be increased by moving the rotation centre further from the area being radiographed. This has two disadvantages — the spinal image becomes more defined and is confused with those of the teeth and jaws, and the transition between the incisal track and premolar tracks becomes abrupt and causes distortion in the transition areas.[17,18,20,27]

Machines made to approximate the shape of the Indo-European races are unsuitable for the Asiatic races and vice versa, because the positioning devices used are made to accommodate the lower jaw regardless of the fact that the dental arches vary in position in relation to the mental protuberance. As the anterior body section is narrow many radiographs are blurred in the incisal area.

When the angle of the radiation source is set at 7.5 to 9.0 degrees in order to avoid projecting the dense bone of the base of the skull upon the teeth and jaws the results may be distorted because the shadow of the base of the skull is thrown upwards above the teeth. However, the variations in the level of the base of the skull and the position and angle of the teeth necessitate a variable radiation source angle to suit each patient. Some angulation is inevitable and the resulting distortion should be kept in mind when interpreting the radiograph. Radiographs of the temporomandibular joints may require an angulation of 15 degrees to avoid superimposition of the dense shadow of the base of the skull over the joint. For this angulation the source has to be lowered so that the shadows fall on the film.[20,28]

Asymmetry of the jaws is inherent in all human beings and must be accepted as the machines can only be set for a symmetrical survey. When the patient is orientated in the Frankfurt plane four reference points are needed — the right and left portion and the right and left infra-orbital border.

These four points are rarely in one plane as the jaws are not symmetrical so that the midline of the incisor region is not that of the posterior region. An asymmetrical image is therefore produced and many points fall outside the body section of the set track. This produces a poor diagnostic film. A compromise position of the patient must be found to accommodate the area under investigation. This is achieved by placing the dental arches and the midline of the incisor region in the centre of the machine.

The patient is positioned in the machine against five points: (a) the chin rest which determines the height of the jaws between source and film; (b) the bite fork which determines the position of the incisal edges of the anterior teeth in the body section; (c) the temporal supports which determine the position of the head in midline in the sagittal plane; (d) the marker placed on the infra-orbital border of the right eye marking the infra-orbital foramen.

In addition there is a series of lines on the dome of the machine which help to place the portion in line with the infra-orbital border by adjusting the patient's head within the temporal supports.

This positioning ensures that the incisal section is in the plane of the body section, the right and left segments — despite asymmetry of the skull — are as close as possible to the buccal body sections, and the patient is orientated to the Frankfurt plane. Movement of the patient during exposure is thus minimized if he is in a comfortable position.

The speed of the driving mechanism should be uniform. If variations occur, they should be corrected. Vertical lines and alterations of density in different areas and false distortion of various parts are due to the driving mechanism.

Some machines are so sensitive to proper levelling at installation that any deviation from the horizontal plane causes the mechanism to labour and change speed during the exposure cycle. Proper installation and maintenance are therefore important.

## Advantages and disadvantages

Body section radiography shows a much wider area than an intra-oral survey and without the superimposition of structural shadows.[7,9,13,18,21,29-31] Exposure extends to the temporomandibular joint, condyles, ascending rami, and to the lower border of the orbit. Right and left sides can be compared and asymmetries detected since the entire dentition, erupted and unerupted, appears on one film. All structures outside the cut are blurred or distorted but may nevertheless be interpreted.

There is a definite limit to the use of body section radiography.[12,13,20,21,23,31,32] Intra-oral radiography also has its limitations but excels in certain fields. It gives an extremely detailed picture of structures in the immediate vicinity of the oral cavity so that the early pathology of caries, periodontal disease and bone changes can be detected.

A further advantage of intra-oral radiography is that films can be taken at widely different angles to obtain a three dimensional conception of tooth and bone. Body section radiography is limited to one plane and one angle. The two are therefore complementary.

The radiation dose of body section radiography of the jaws is approximately 1.5R which is achieved in each of the three centres of rotation. These are in the right and left posterior molar regions and in the midline in the floor of the mouth behind the incisors. The skin dose throughout the scan is low because there is no overlap of consecutive exposures, as in conventional radiography.[33-40]

In conventional intra-oral radiography when 14 to 25 films are taken the skin dose is 3R in the areas of maximum exposure overlap around the lips; 1R is achieved in the deeper structures near the central area of the tongue where the various beams converge. These low values are only sustained with good collimation, the use of high-speed films, high kVp, long cone and good film development. Poor collimation, slow films, low kVp, short cone and the consequent underdevelopment or overexposure of films may raise the dosage to more than 100R.[38-40]

Body section radiography of the jaws demands the same precautions. A narrow collimation slit, high-speed films and intensifying screens should be used. Good film development and the proper lead apron for the patient's total protection are essential.

To obtain a consistent result in body section radiography it is imperative that the operator knows not only the principles of the apparatus but also has a working knowledge of radiological techniques and head and neck anatomy. Operators of such delicate and sophisticated machinery should therefore receive extensive training in radiography, anatomy of the head and neck and radiation protection before embarking on body section radiography.


## Summary

This article describes the basic principles of body section radiography. Different types of machines and their advantages and disadvantages are discussed. The authors relate their own experience with body section radiography and stress that in order to obtain satisfactory results one must first have a thorough knowledge of head and neck anatomy and radiography.



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# Treatment of acute necrotizing ulcerative gingivitis with metronidazole

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*Metronidazole, a drug used in the treatment of trichomonal infection, is also a highly effective substitute for antibiotics in the treatment of acute necrotizing ulcerative gingivitis. This clinical study reconfirms earlier findings by British investigators. After the conclusion of drug therapy and elimination of the acute infection with its characteristic ulceration, it is imperative to pursue vigorous oral hygiene procedures and any necessary periodontal treatment to eliminate the residual chronic gingivitis and restore the gingival architecture.*

*Le metronidazole qui est une drogue utilisée dans le traitement des infections trichomonales, est aussi un substitut aux antibiotiques extrêmement efficace dans le traitement de la gingivite ulcéro-nécrotique aigüe. Cette étude en clinique vient confirmer les résultats auxquels en étaient arrivés des chercheurs britanniques. Lorsqu'on a mis fin à la thérapie par cette drogue, et que l'on a éliminé l'infection aigüe avec ses ulcérations caractéristiques, il est impérieux de prendre des dispositions très rigoureuses en ce qui concerne l'hygiène buccale, et d'effectuer tout traitement péridentaire de nature à éliminer toute gingivite chronique résiduelle et de restaurer l'architecture de la gencive.*

Metronidazole (Flagyl, Poulenc; Trichazol, Will; Trikamon, Elliott-Marion) has been used since 1959 to treat trichomonal infestations. Its primary use was in the treatment of genito-urinary infections due to *Trichomonas vaginalis.* However, in 1962, Shinn[1] reported that a patient with trichomonas vaginitis who was also suffering from acute necrotizing ulcerative gingivitis was cured of both conditions by metronidazole. He did further studies with this drug, all with a marked response. Since then there have been many investigations,[2-4] primarily in England, using metronidazole as a specific form of treatment against Vincent's infection.

We present three illustrative case histories and the results of a series of 20 cases treated at the Emergency Clinic of the Faculty of Dentistry, University of Manitoba, over a period of some 18 months.

This drug has received very little attention on this continent, and it has only recently been removed from the Investigatory List in Canada. Case 3 describes a rare form of Vincent's infection that spread to the hard palate. On this continent Vincent's infection is primarily confined to the gingiva; but in Africa and Asia the condition is frequently seen in other parts of the oral mucosa.

## Case histories

*Case 1* — Mr. R., age 19, came to the clinic complaining of severe pain from his gums, bleeding, bad taste and a foul odour. Examination disclosed a typical, though extreme, picture of acute necrotizing ulcerative gingivitis (Fig 1). A smear taken of the infected area yielded a large number of spirochaetes and fusiform organisms. We prescribed metronidazole, 250mg three times daily for seven days, and asked the patient to return on the next day. No further treatment was undertaken at this time.

Twenty-four hours later the pain had almost completely subsided, the sloughing (Fig 2) was markedly reduced and the odour was barely noticeable. A smear taken at this time yielded much fewer spirochaetal and fusiform organisms.

In 48 hours the patient was completely free of all subjective symptoms (Fig 3). At this time scaling and debridement were carried out and the patient asked to return in five days. A smear taken at this stage showed normal oral flora.

At the end of seven days the acute necrotizing ulcerative gingivitis had been eliminated (Fig 4). Extensive oral hygiene treatment was then carried out and the patient referred for periodontal therapy.

*Case 2* — Mr. D., age 18, reported to the clinic complaining of rather severe pain in the gums and a bad taste. Examination revealed two clinical conditions: (1) pericoronitis around the lower right third mandibular molar, with facial swelling and cervical lymphadenopathy (Fig 5, 6), and (2) a fairly typical Vincent's infection in the anterior mandibular and maxillary arches (Fig 7). Smears confirmed the diagnosis of Vincent's infection. We prescribed metronidazole, 250mg three times daily, and asked the patient to return within 24 hours. No further treatment was administered.

The next day his general condition was greatly improved (Fig 8, 9). The only residual pain was in the area of the pericoronitis. Symptoms of the Vincent's infection had disappeared (Fig 10). At this stage gross scaling was carried out and oral hygiene instructions were given.

At the end of the seven day course of the drug both conditions had resolved. Extensive oral hygiene procedures were then carried out and the patient was referred for periodontal and surgical treatment.

*Case 3* — A 17 year old, well-developed, adequately nourished, white girl came to the clinic for evaluation and treatment of painful and bleeding gingiva with a large ulceration in the rugae area of the palate (Fig 11, 12). The patient's mouth was remarkably free of calculus and materia alba. She had an end-to-end occlusion with an anterior left crossbite. Clinical and bacterial examination confirmed the presence of Vincent's infection in the gingiva as well as the palatal ulcer. We prescribed 250mg metronidazole three times daily for seven days.

After 24 hours the palatal ulcer had cleared except for slight erythema at the border of the lesion (Fig 13). The interproximal papillae were free of disease (Fig 14). A smear revealed normal oral flora.

After seven days the acute necrotizing ulcerative gingivitis had been eliminated. The patient was given extensive oral hygiene treatment and referred for periodontal treatment.

**Clinical trials**

*Methods* — The clinical assessment was made on the basis of four criteria: pain, bleeding, ulceration and odour. These were slightly modified from the criteria used by Shinn et al.[5] The values set arbitrarily were 0 = nil, + = mild, ++ = moderate, +++ = severe (Table 1).

Smears were obtained in all cases for bacteriological confirmation of Vincent's infection.

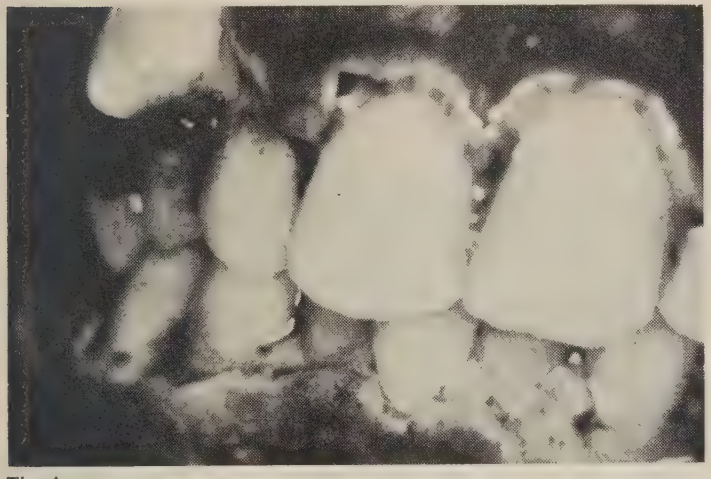
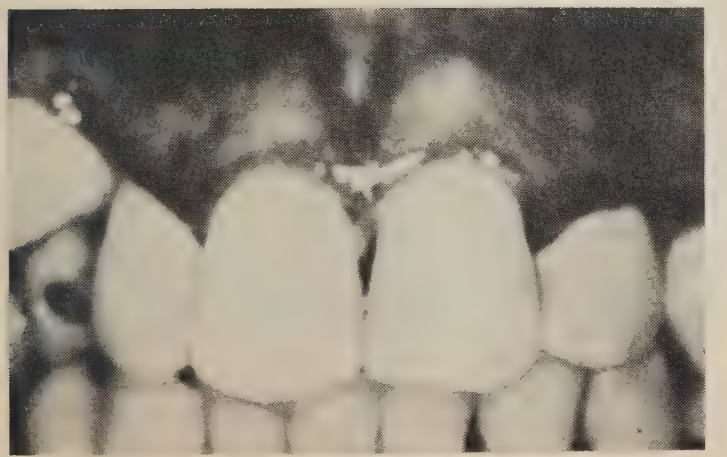


Fig 1

Fig 2



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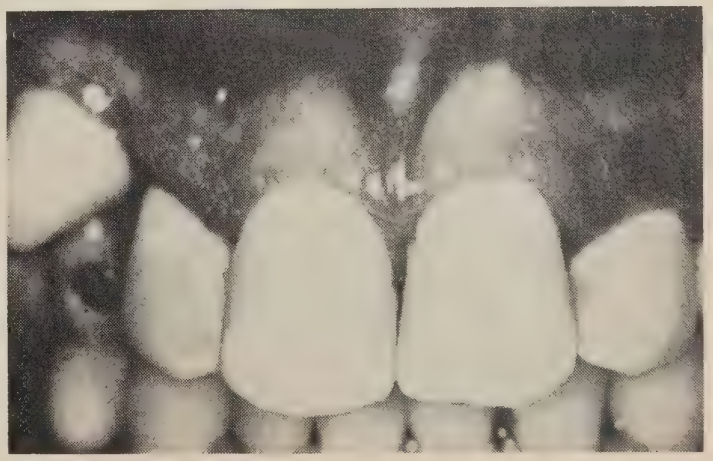

Fig 4

Patients were then put on a regime of 1 tablet (250mg) of metronidazole three times a day for seven days and instructed not to consume alcohol during this treatment phase. They were also seen after 24 hours and 48 hours when further smears were obtained. In all cases scaling and debridement were done within 48 hours without undue discomfort. The patients were recalled on the seventh day and reassessed clinically.

*Results* — We saw 12 males and eight females whose ages ranged from 16 to 33, with the preponderance in the 17 to 21 year range (Table 2). This agrees with the literature, as the predominant age range for this condition in North American society is the latter part of the second and early part of the third decades of life.

The elimination of the fetid odour and taste, characteristic of Vincent's infection, was the most striking effect, with all patients free of odour by 48 hours. The cure rates for symptoms of pain and bleeding were approximately the same, with the total cure requiring more than 48 hours for five and four, respectively, of the patients. The rest were free of these symptoms within two days. Ulceration persisted longer than the other features, with five subjects still demonstrating minor ulceration at Day 2.

## Discussion

The treatment of acute necrotizing ulcerative gingivitis has passed through several different phases.[6] Most authorities now consider chromic acid, a necrotizing agent, has no place in the treatment of Vincent's disease because of the additional necrosis and damage it

**Clinical assessment of pain, bleeding and ulceration in 20 patients treated with metronidazole** **Table 1**

| Pain | Bleeding | Ulceration |
|---|---|---|
| 0 None | 0 None | 0 None |
| + Some discomfort | + Only on pressure | + Tips of papillae, 1 quadrant |
| ++ Fairly constant | ++ Spontaneous in 1 or 2 areas | ++ 2 or 3 quadrants |
| +++ Severe, awake at night | +++ Generalized | +++ All 4 quadrants |

Fig 5

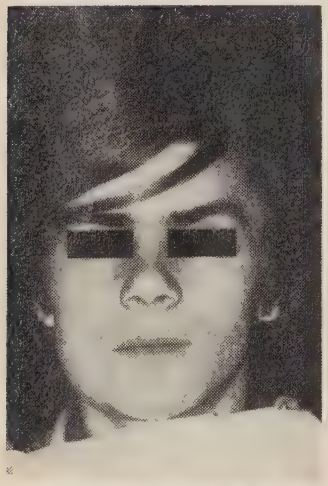

Fig 6

Fig 7

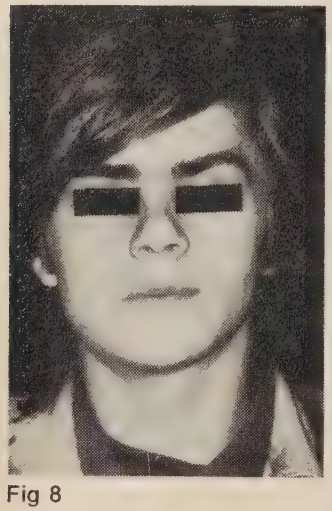

Fig 8

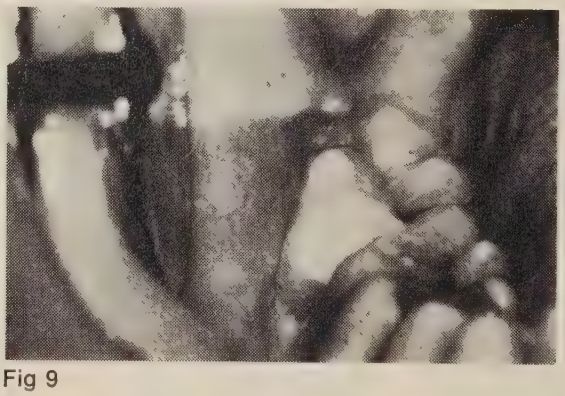

Fig 9

Fig 10

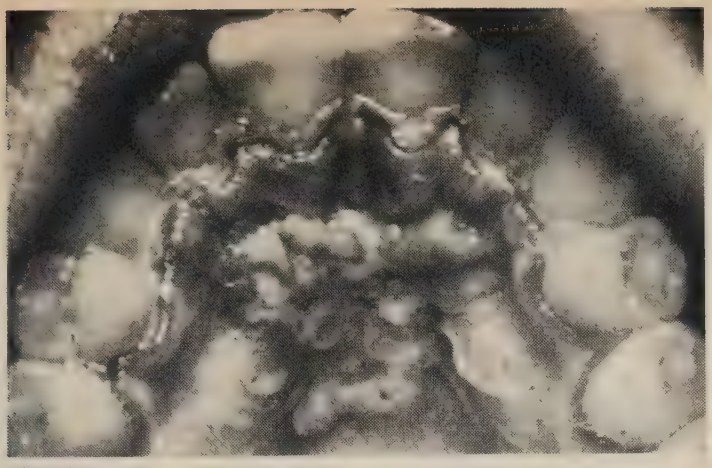

Fig 11

Fig 12

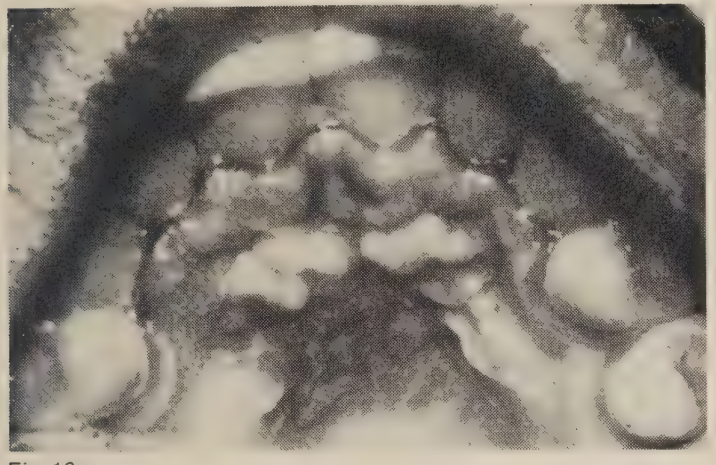

Fig 13

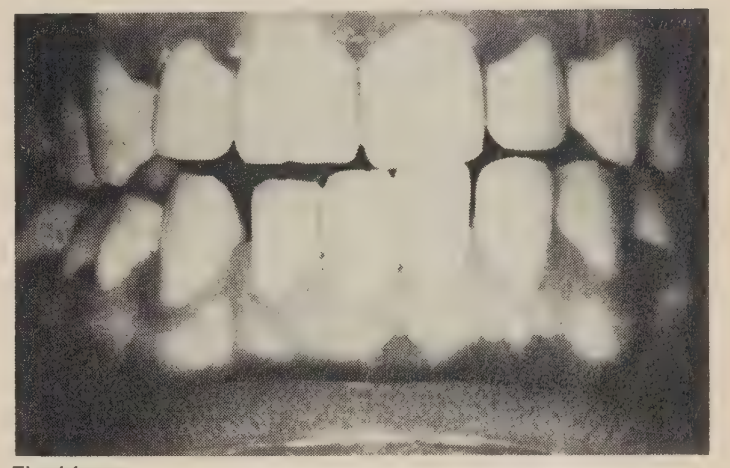

Fig 14

**Results of metronidazole therapy in 20 patients with acute necrotizing ulcerative gingivitis** **Table 2**

| Patient | | | Day 0 | | | | Day 1 | | | | Day 2 | | | | Day 7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Pain | Bleeding | Ulceration | Odour | Pain | Bleeding | Ulceration | Odour | Pain | Bleeding | Ulceration | Odour | |
| 1 | M | 19 | +++ | ++ | +++ | +++ | − | + | − | − | − | − | − | − | |
| 2 | M | 18 | ++ | + | ++ | ++ | − | − | − | − | − | − | − | − | |
| 3 | M | 19 | +++ | + | +++ | ++ | + | − | − | − | − | − | − | − | |
| 4 | F | 17 | ++ | ++ | +++ | ++ | − | − | ++ | | − | − | − | − | |
| 5 | M | 28 | +++ | ++ | +++ | ++ | − | − | + | − | − | − | − | | |
| 6 | M | 19 | ++ | + | +++ | +++ | + | − | − | − | + | − | − | − | All values negative |
| 7 | F | 21 | +++ | ++ | +++ | +++ | − | − | + | − | − | − | − | − | |
| 8 | M | 23 | +++ | +++ | ++ | ++ | − | + | + | − | − | − | − | − | |
| 9 | F | 24 | ++ | +++ | ++ | ++ | + | − | + | − | − | − | + | − | |
| 10 | F | 27 | ++ | − | + | + | − | − | − | − | − | − | − | − | |
| 11 | M | 20 | ++ | +++ | +++ | ++ | − | − | + | − | − | − | − | − | |
| 12 | M | 19 | +++ | +++ | ++ | ++ | + | + | + | − | − | + | + | − | |
| 13 | F | 25 | +++ | + | +++ | ++ | − | − | + | − | − | − | − | − | |
| 14 | M | 19 | +++ | ++ | +++ | ++ | − | − | + | − | − | − | − | − | |
| 15 | M | 20 | +++ | + | ++ | ++ | − | − | + | − | − | − | − | − | |
| 16 | F | 16 | + | − | + | + | − | − | − | − | − | − | − | − | |
| 17 | F | 18 | ++ | + | ++ | ++ | − | − | − | − | − | − | − | − | |
| 18 | M | 17 | + | − | + | + | − | − | − | − | − | − | − | − | |
| 19 | F | 22 | ++ | + | +++ | ++ | + | − | ++ | + | + | − | + | − | |
| 20 | M | 33 | ++ | ++ | +++ | +++ | − | + | ++ | + | − | − | + | − | |

causes the gingiva. Hydrogen peroxide has been used extensively and is fairly effective, but usually takes two to three days to control the main symptoms. Immediate gross scaling is also necessary in many cases but can be quite painful. Latterly, penicillin has been used to good effect. But penicillin has three drawbacks: (1) its allergenic capacity, which is on increase, (2) the risk of producing penicillin-resistant bacterial strains, and (3) possible local reactions such as black hairy tongue, erythema or candidiasis.

Metronidazole has proved a highly effective substitute for antibiotics. It permits scaling and debridement within 24 to 48 hours after starting drug therapy without causing the pain and other problems associated with this procedure.

Although the pericoronitis in Case 2 subsided along with the Vincent's infection, metronidazole is not a specific form of treatment for this condition when it is not due to the Vincent's organisms.

Side effects of metronidazole are very rare, although some very minor ones have been reported.[2] These usually involve the gastro-intestinal tract. Caution must be used in dealing with patients with hyperthyroidism, impaired adrenergic function, severe liver damage, and active disease in the central nervous system. The trichomoncide should not be given to anyone with a history of blood dyscrasia. As mentioned earlier, patients should also abstain from any alcohol during the treatment phase. Metronidazole has been used as one of a number of drugs that are under experimental use as a means of combatting alcoholism and tends to produce an incompatibility during treatment. This may range from a metallic taste to nausea.

The treatment protocol may be summarized as follows:

1. Following diagnosis of Vincent's infection metronidazole tablets, 250mg, may be prescribed three times daily.
2. Patients should be recalled within 24 to 48 hours for gross scaling and debridement.
3. After a seven day course on the drug patients should receive any necessary periodontal treatment.

## Summary

The results of clinical trials on 20 patients with acute necrotizing ulcerative gingivitis using metronidazole have been discussed. Three case histories illustrating aspects of this disease have been presented. Metronidazole is safer, more rapid and effective than other present methods of treatment. Our results confirm the findings of previous British investigators.

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*(Continued from page 360)*

Executive Director's Page

From the foregoing it will be seen that so long as the accounts receivable of the dental practice increase, the "cushion" will never be brought into income, and tax on these amounts may be deferred indefinitely. The date of reckoning will, of course, occur at either the death or retirement of the dentist.

It is also apparent that those dentists who have not as yet completed their 1971 fiscal periods would be well advised to examine their work in progress files and render an account in all cases where such an account would be appropriate in order to establish the "cushion" at its highest possible amount.

# Tongue thrust and the protrusion lisp

**Ruth Lewis, MA, LCST**
**Toronto**

*Protrusion lisp, usually caused by tongue thrust, is a dental as well as a speech problem necessitating close cooperation between the dentist and speech therapist. Miss Lewis describes the basic problems and methods of treatment for this defect. Thorough and conscientious treatment is essential for successful results.*

*Le zézayement, ordinairement causé par la poussée de la langue, est un problème à la fois dentaire et d'élocution, nécessitant la collaboration effective du dentiste et du logothérapiste. Mlle Lewis décrit les problèmes majeurs et les méthodes utilisées dans le traitement de ce défaut. Un traitement complet et consciencieux s'avère indispensable si l'on veut obtenir des résultats satisfaisants.*

Tongue thrust is a problem for the paedodontist, the general practitioner, the orthodontist and the speech therapist. Since it is the basic cause of the protrusion lisp, speech therapists can use their treatment of this speech problem to assist dentists.

Treatment of the protrusion lisp—the defective articulation of sibilant consonants—requires more than correcting the pronunciation of these sibilant sounds; for permanent results it is also necessary to improve the malfunction of the tongue in swallowing and the position of the tongue at rest.

## Speech correction techniques

Measures that go beyond treatment of the speech defect to correct tongue malfunction can aid dentists in their approach to the problem. Speech therapy alone cannot achieve a permanent solution of the protrusion lisp. Likewise, orthodontic treatment will be undone in a few years' time unless the tongue thrust has been brought under control. It is my experience that if speech therapists can correct the protrusion lisp between the ages of four and six and at the same time correct all aspects of tongue malfunction they perform a service for the dentist as well as themselves.

During the past few years most cases of tongue thrust that I have treated have been referred by orthodontists. Their assumption is that if the speech therapist can eradicate the lisp, the tongue thrust will be brought under control. In one sense the orthodontist counts on the speech therapist to solve his problem. In another sense he gives us the opportunity to increase our knowledge and broaden our techniques. Any speech therapist who takes on a case of tongue thrust to cure a lisp will find that the problem is far more than a speech defect, for it requires an apprecia-

tion of the entire mechanism of the tongue. To eradicate a lisp caused by tongue thrust involves not only the correction of the articulation of the sibilant sounds s, z, sh, zh, ch and j, but also the whole muscular behaviour of the tongue in masticating and particularly in swallowing food. The position of the tongue when at rest must be altered, along with improper breathing habits, especially when the child breathes through the mouth instead of the nose.

There are two approaches to the problem; either the orthodontist refers the patient to the speech therapist before starting his treatment, or else we work as a team, the orthodontist giving us information on his procedures, while we keep him informed of our techniques in treating the lisp. I prefer the former approach. If the tongue thrust is detected at an early age, before the orthodontist is ready to start treatment—that is, between the ages of four and six—we can prepare the ground without too many mechanical appliances in the child's mouth.

## Causes of defects

Tongue thrust is related to tongue sucking habits in infancy. Some children have a delayed development of tongue movement associated with masticating and swallowing solid food. In these cases the tongue when at rest lies along the floor of the mouth instead of being arched against the palate. A child maintaining the improper position of the tongue unconsciously protrudes the tongue tip and lets it rest on the lower teeth when absorbed in play or reading to himself. Prolonged thumbsucking overdevelops the sucking movements of the tongue and finally contributes to malocclusion.

As a result the developing speech becomes defective, particularly in the sibilant consonants. A lisp is the name commonly given to such a speech disorder. If the tongue movements in eating and speaking are retarded, their physical aspects become apparent by the age of six. They include open bite, buccal crossbite, anterior crossbite (as in cleft palate cases), and lateral mandibular shift to left or right in closure of the teeth, instead of the normal closure pattern.

## Examination

The initial examination of a child with tongue thrust includes a case history from the parents, with particular attention given to infant feeding. The therapist determines whether he was breastfed or bottle fed and how soon semi-solid foods were introduced. The child's position in the family is noted, and whether or not he had any debilitating illnesses in early childhood which made him slow to talk and eat. We question the mother about his behaviour during eating. His social conduct is also of importance. The developmental history should be comprehensive and should include details about his contact with a dentist and a paediatrician.

The examination of the child involves an intelligence test, speech examination, with particular note as to whether the lisp is confined to the s and its voiced counterpart z, or if it is more complicated, including the sh and zh and the ch and j consonants. Some children with tongue thrust have a very slight lisp, usually undetected by the parents and siblings. This makes the task of eradicating the tongue thrust more difficult, because there is nothing tangible for the child to perceive as the treatment proceeds.

Examination of tongue behaviour apart from speech is essential. We observe how the child swallows solids and liquids. The errors to watch for are chewing with the mouth partially open, and making unnecessary circular movements of the blade and tip of his tongue. An accompanying bad habit is tongue chewing when not eating. An apple is the best food for observing how he bites and masticates his food.

## Treatment

The treatment is not simple or easy to administer. One must have the full cooperation of the mother with any child under 12. With an adolescent, the therapist has to convince the patient that the prescribed exercises must be carried out systematically day by day at home; otherwise no improvement in tongue control can be achieved. Children who are psychologically resistant or do not cooperate cannot be helped by our treatment.

There are five areas of investigation and treatment: breathing, posture, auditory acuity, mouth habits in chewing and swallowing and speech.

Diaphragmatic breathing is useful for all persons who wish to speak well and project the voice without strain. Good breathing habits are therefore relevant to the tongue thrust case, though not closely related to this particular problem.

Similarly, poor posture may be associated with defective speech. Its correction should therefore be included in the program.

Auditory acuity should be checked. The voiceless sibilants s, sh and ch are high frequency sounds, and a child with high frequency deafness may be unable to hear this group of consonants.

The correction of poor mouth habits is a delicate and intricate part of the treatment. We ask the patient to open and close with the lower anterior teeth just behind the upper anterior teeth. Some children may not be able to do this, requiring orthodontic treatment to change the alignment. Others shift the jaw to the right or left, a habit that must be broken as soon as possible provided there is no crossbite or premature contacts.

The tongue when at rest should lie close to the hard palate with the tongue tip free in the upper part of the mouth behind the anterior teeth. To test this I give the patient sugarless gum which he chews and deposits against the roof of the mouth. This gives him a kinaesthetic cue as to where his tongue is.

The swallowing movement[1] is tested next. The child is seated in a comfortable chair with his head slightly thrown back. With a small syringe the therapist shoots a mouthful of water to the back of his mouth. The child is asked to close his teeth and swallow while the therapist gently holds his lips apart. If a

shower of water spurts out between the teeth, the swallowing movement is abnormal. The therapist explains to the child that he used the front of his tongue instead of the back in the act of swallowing, causing some of the water to gush forward. This procedure is repeated until the patient comprehends the correct movement required. This is learning at the kinaesthetic level, feeling how the tongue muscles work. Many children have no clue as to what their tongues are doing; hence the intricacy of treatment.

The next step is swallowing water from a glass in the same manner, but with less backward movement of the head and neck. This being achieved, solids are introduced. I use very small sugarless mints. The mint is placed on the back of the child's tongue, water is squirted into the back of the mouth and, with teeth closed and lips held open, he is directed to swallow energetically. Some children will splutter or cough, but no serious choking ensues. It may take several weeks to master the swallowing technique. Finally, both the patient and the therapist eat an apple and observe each other. Observing in a mirror the movements of the jaw and throat during the act of swallowing completes the treatment.

While treating tongue behaviour, we can also begin to correct a lisp. The straw technique is the simplest method to obtain good results in initiating the s consonant and its voiced counterpart z. The straw is placed on the centre of the lower lip and held like a reed pipe. The child is instructed to hiss through closed teeth. Automatically the tongue forms a central groove behind the front teeth, and the friction caused by the air flowing through this narrow passage produces a perfect s. The sound is exaggerated on the hollow plastic straw, and this may make the child think he is articulating s too strongly, but an explanation of the reinforcement of air by an open tube is understood by older children. The same method is used for z except that the instruction is to buzz across the straw, thus bringing out the voiced quality of z as compared to s.

The straw is discarded when correcting sh, zh, ch and j. Once s is established the child only needs to round and protrude the lips and withdraw the tongue tip from behind the anterior teeth to produce sh. The position of the lips is so important in making this sound that a mirror is a useful tool. As the lips protrude, the tongue tip almost automatically withdraws into the mouth cavity. The sound zh is a voiced sh, and the same treatment applies with the addition of the voice by vibrating the vocal cords.

The last two consonants are compound: ch is t and sh articulated together as one, and j or soft g is the voiced counterpart of ch—that is to say d and zh are articulated together to make one sound. The method proceeds from the mastery of sh and zh. For ch the child explodes t with the tongue tip released from the alveolar ridge as he articulates sh. Similarly for j the d is exploded with the release of the tongue tip from the alveolar ridge while zh is sounded. In the majority of tongue thrust cases only the s and z are affected, but in severe cases all six consonants are involved in the treatment.

Once the correct positions of the consonants have been established the proper use of the sounds must be introduced in his speech. Building a vocabulary of words with these particular sounds used in the initial, medial and final position in a word forms the first practice; then phrases and sentences using the sound extensively, and finally descriptions of pictures and toys, and short stories are read aloud or related in their own words. Thus the use of the newly learned positions of these consonants is established in his everyday speech.

## Discussion

The tongue thrust problem is a challenge to all speech pathologists. In two cases where I had the full cooperation of mother and child, the results were excellent. After six to eight months' treatment, during which I saw the patients weekly, the defective speech was corrected and the malocclusion subsided. The children were re-examined by their respective orthodontists who determined that no further orthodontic procedures were necessary. In other cases where neither parent nor child is responsive, a change in attitude is the only way to improve the situation. Motivation depends on the skill of the therapist. With the adolescent, bringing out the humorous side of what is being done may be helpful. In younger children, the use of puppets during instruction keeps interest alive. One that I find effective is a little mandarin whose tongue sticks out and whose hands fly up in horror when the string is pulled.

## Summary and conclusions

Working with tongue thrust patients requires a thorough analysis of the complex mechanism employed in speech, especially the tongue which is the most muscular organ for its size. With careful treatment the speech therapist can provide valuable assistance to the orthodontist. Few cases are as demanding and none is as gratifying when success is achieved.

Miss Lewis' address is Suite 482, 86 Bloor St W, Toronto 5.

1 Straub, W. J. Malfunction of the tongue. Part II. The abnormal swallowing habit: its causes, effects, and results in relation to orthodontic treatment and speech therapy. J Amer Orthodont 47:596, 1961.

# Dental care in an institution for the mentally retarded

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**W. Harcus Inkster, DMD**
**H. J. Phillips, DDS, DDPH**
**Vernon, BC**

*The authors describe a three year study which they conducted in an institution for the mentally retarded. Their purpose was to discover the kind of dental problems experienced by the patients and what dental care was available. Their conclusion: dental care for the mentally handicapped in institutions is often overlooked in a general medical care program.*

*Les auteurs décrivent une étude d'une durée de trois ans effectuée dans une institution pour déficients mentaux. Leur but était de découvrir de quel genre de troubles les patients souffraient et de quels soins dentaires ils disposaient. Ils concluent que les soins dentaires pour les handicapés mentaux institutionalisés forment une partie souvent négligée du programme général de soins médicaux.*

Programs for the care and training of the mentally retarded in institutions rarely include any mention of their dental needs.[1, 2] Physicians, psychologists, social workers and the speech therapists are involved as a matter of course but not the dentist.

Because we regard dentistry as part of comprehensive health care for the mentally retarded person, a three year study was undertaken at the Tranquille School, Kamloops, to determine dental problems and dental care requirements. During this time, two of the authors provided dental services to the school while also engaging in private practice.

The Tranquille School provides residential care for 676 mentally retarded persons. During the three years of the study it admitted all mental levels apart from children under the age of 10.

Data from the dental examination were recorded at the first appointment. Recordings on general mouth conditions were based on the following criteria:

Good mouth condition—teeth: sufficient chewing area for good mastication by natural teeth alone, or aided by partial or full dentures. Gums: healthy.

Fair mouth condition—teeth: insufficient chewing area. Gums: unhealthy but bone generally sound.

Poor mouth condition—teeth: totally insufficient chewing area or sufficient chewing area with mobile or edentulous teeth. Gums: very unhealthy; pus may be present.

## Groups

Though dental services were provided to all residents of the school, we decided to make a detailed study of three specific groups: 114 patients suffering from Down's syndrome (mongolism), 60 afflicted by cerebral palsy and 36 classified as having "cultural familial" characteristics.

Down's syndrome exhibits both mental and physical defects. These include a peculiar shape of the cranium, dysplastic features and small oral structures. The condition is caused by a chromosomal abnormality, usually trisomy 21. The mental level of our 114 patients varied from profound to moderate retardation. Their average age was 30 years and their stay in an institution averaged 20 years. All were able to walk and masticate.

Cerebral palsy may be caused by phenylketonuria, birth injury, primary microcephaly, postnatal encephalitis and bilirubin encephalopathy, but most cases are due to unknown prenatal causes. All 60 subjects in this group had a severe physical disability. They could neither walk nor feed themselves. They were doubly incontinent, and unable to speak or chew their food. Their liquefied diet had to be administered with a spoon or a cup. All were profoundly retarded. The average age was 24 years; the average stay in an institution was 17 years.

"Cultural familial" is the term given in the Heber classification[3] to persons whose parents are on the borderline or dull normal level of intelligence and who have at least one mildly retarded sibling. Their intelligence is limited because their parents are similarly limited. The 36 patients in this group were fully ambulant and could chew their food. The average age was

**Dietary intake** **Table 1**

| Meal | Protein (Gm) | | Fat (Gm) | | Carbohydrate (Gm) | | Calories | | Calcium (mg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cerebral palsy | Mongoloid and cultural familial | Cerebral palsy | Mongoloid and cultural familial | Cerebral palsy | Mongoloid and cultural familial | Cerebral palsy | Mongoloid and cultural familial | Cerebral palsy | Mongoloid and cultural familial |
| Breakfast | 20.1 | 28.6 | 16.9 | 34.0 | 35.0 | 74.0 | 381 | 718 | 216 | 399 |
| Dinner | 36.3 | 45.5 | 15.6 | 29.8 | 37.0 | 86.3 | 552 | 916 | 215 | 398 |
| Supper | 36.3 | 31.6 | 15.6 | 41.5 | 37.0 | 95.2 | 552 | 873 | 215 | 870 |
| Fruit juice, coffee and evening cocoa | 6.4 | 7.3 | 4.9 | 8.5 | 42.6 | 24.9 | 236 | 205 | 174 | 264 |
| Total | 99.1 | 113.0 | 53.0 | 113.8 | 151.6 | 280.4 | 1,721 | 2,712 | 820 | 1,931 |

Caloric intake from candy and carbonated beverages cannot be accurately determined.
Because of a tendency to obesity, the mongoloids' diet must be periodically restricted. The restricted diet comprises: protein 87.9Gm, at 32.0Gm, carbohydrate 143.9Gm, calories 1,339, calcium 1,572mg.

35 years; the average length of time in an institution was 19 years. All were mildly retarded.

## Diet

Details of the dietary intake of the three groups are given in Table 1. The cerebral palsy patients, by virtue of their affliction, differed from those of the other groups by having a strictly controlled diet. Members of the other groups visited the school canteen to purchase candies, chocolate bars, sugar coated popcorn and carbonated drinks; they also attended many social functions where sweet drinks with cake and biscuits were served. Cerebral palsy patients, because of their inability to chew or control their swallowing, were not given candies or popcorn. The only additions to their diet were fruit juice and evening cocoa. The entire diet was liquefied for consumption. A synthetic vitamin supplement (Pardec, Parke Davis & Co Ltd) was given daily.

**Dental treatment** **Table 2**

| | Mongoloids | Cerebral palsy | Cultural familial |
|---|---|---|---|
| Patients | 114 | 60 | 36 |
| Average age | 30 yrs | 24 yrs | 35 yrs |
| Average stay in hospital | 20 yrs | 17 yrs | 19 yrs |
| Total visits to dentist in 3 yrs | 688 | 230 | 294 |
| Average visits to dentist per patient: | | | |
| 3 yrs | 6.0 | 3.8 | 8.2 |
| 1 yr | 2.0 | 1.3 | 2.7 |

| | Number of patients* | % of group | Number of patients* | % of group | Number of patients* | % of group |
|---|---|---|---|---|---|---|
| Services rendered: | | | | | | |
| Fillings | 25 | 21.9 | 1 | 1.7 | 22 | 61.1 |
| Gingivectomy | 2 | 1.8 | | | 1 | 2.8 |
| Extraction | 38 | 33.3 | 10 | 16.7 | 8 | 22.2 |
| Scaling | 52 | 45.6 | 7 | 11.7 | 24 | 66.7 |
| Sedation | 13 | 11.4 | 2 | 3.3 | | |
| No specific treatment† | 34 | 29.8 | 42 | 70.0 | 7 | 19.4 |
| Dentures: | | | | | | |
| In place | 4 | 3.5 | | | 8 | 22.2 |
| Edentulous | 14 | 12.3 | 7 | 11.6 | 5 | 13.9 |
| Mouth condition:‡ | | | | | | |
| Poor | 28 | 24.6 | 12 | 20.0 | 3 | 8.3 |
| Fair | 48 | 42.1 | 22 | 36.7 | 8 | 22.2 |
| Good | 28 | 24.6 | 19 | 31.7 | 22 | 61.1 |

*Treatment is not mutually exclusive. Some patients had more than one of the treatments listed.

†Includes edentulous patients and those with dentures.
‡The mouth condition of some patients was not recorded.

## Dental treatment

An analysis of the dental care administered to the three groups during the three years of the study is given in Table 2.

*Number of visits to the dentist* — Mongoloid patients made more visits (688) to the dentist than anyone else but the cultural familial group had the highest number of average yearly visits (8.2).

*Fillings* — The cultural familial group showed the highest proportion of persons requiring fillings (61.1 per cent). Nine of the 25 mongoloids who received fillings required more than one restoration. All were between 20 to 29 years of age. In cerebral palsy patients, who required the least number of fillings, the most frequent treatment was extraction.

*Dentures* — Table 2 also shows that 22.2 per cent of the cultural familial group had complete or partial dentures and 13.9 per cent were edentulous. Both figures are higher than in either of the other two groups. Only 3.5 per cent of the mongoloid patients could be fitted with dentures. In the cerebral palsy group it was neither possible nor practical to fit dentures. The proportions of patients who were edentulous were similar in all three groups.

*Calculus* — Scaling consumed more professional time than any other treatment. Two out of three persons in the cultural familial group and nearly half of the mongoloids required this service — in many cases, yearly.

### General mouth condition

There are important differences between the three groups, with cultural familial patients showing a higher proportion in the "good" category (Table 2). Age does not seem to have a significant effect, however.

### Sedation and general anaesthesia

It was necessary to sedate 13 of the mongoloids on several occasions. The sedative was usually a tranquillizer sometimes combined with a barbiturate. Though local anaesthesia (lidocaine) was used for most fillings and extractions, it was often impossible to get these patients to open their mouths. The cultural familial group cooperated without any sedation, presumably because these patients are of a higher mental level.

The cerebral palsy group presented a different problem. Here was a group of profoundly retarded people who were unable to speak, or to express fear or pain. It is therefore significant that general anaesthesia for extractions and fillings was used once in the cultural familial group, twice in mongoloids and four times in cerebral palsy patients.

### Discussion

A recent survey by the Canadian Association for the Mentally Retarded underscores the scarcity of dental care in residential facilities for the retarded throughout Canada.[4] Only four out of 19 institutions with 15,611 residents had full-time dentists on their staff. Many institutions do not even provide dental suites and, as the survey states, "part-time dentists often do this work in their community offices."

Levine[5] described the acute problem of dental care for the mentally handicapped person. He deplores the lack of attention to such problems and states that "the basic principles of good dentistry need not be altered because of the handicapping condition."

The medical profession must also accept some blame for this untenable situation. Physicians, aware that retardation is incurable, often overlook the dental needs of these patients.

Dental personnel should possess certain characteristics when treating mentally subnormal persons. The dentist should have unlimited patience, an understanding of the patient's mental level and a willingness to show friendship. He must realize that his patient is apprehensive and easily frightened.

The dental assistant, an important figure in "normal" practice, becomes even more important when treating the mentally retarded as she often portrays a "mother image" in soothing a patient's apprehension.[6]

The dental problems, with few exceptions, are similar to those of the normal child and adult. One exception is the greater frequency of periodontal abnormalities in the retarded person with a genetic condition. Epileptics taking diphenylhydantoin often suffer from gingival hypertrophy. Other dental problems usually arise from neglect. An additional problem in early detection of dental lesions is the speech disability of many of the profoundly retarded. Pain from a neglected carious tooth may be expressed by behavioural disorders. Without speech, a person is dependent on medical and dental examinations to discover the reason for his behaviour.

We feel that preventive dentistry for the retarded should begin at birth with a constantly available supply of fluoridated water. Regular dental examinations with radiographs and topical fluoride applications should be carried on from the age of three.

### Summary

This article explains the results of a three year study of dental care among mentally retarded persons resident in an institution. Comparisons are drawn between three different groups: those with a chromosomal abnormality (Down's syndrome, mongolism), those who are mildly retarded but without physical stigmata (cultural familial group), and those with severe physical and mental handicaps (cerebral palsy).

The mildly retarded group required proportionately more dental care and appeared to be more susceptible to caries. Mongoloids required more extractions, presumably due to the loss of supporting structures. Scaling was the most frequently needed treatment in all patients. Recommendations are made for dental practice within an institution for the mentally retarded.

The authors express appreciation to Delores MacDonald, dietitian, who furnished details of diets provided at the Tranquille School.

Doctor Neave was formerly deputy medical superintendent at the Tranquille School, and Doctors Inkster and Phillips are engaged in private practice. Doctor Neave's address is: 231 Victoria St, Kamloops, BC.

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# Copper band and tray technique for anterior jacket and crown impressions

**Carl Dubin, DDS**
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Copper band impressions with either compound or thiokol for anterior jackets or crowns require a coping or some type of impression technique to align the preparation with the adjoining teeth. Thiokol or silicone in a custom-made acrylic tray give the impression and the alignment but require some form of gingival retraction to register the shoulder or chamfer, which for aesthetic reasons is placed beneath the free margin of the gum. Retraction around the posterior teeth is not usually a problem because the gingiva here seems thicker and better able to sustain mechanical pressure and the chemical vasoconstrictor in the retraction cord without significant irreversible damage. But it often damages tissue around anterior teeth, particularly interproximally when preparing several teeth, and may cause some labial recession which will reveal the finish line even though the initial preparation extended well under the gum.

This paper describes a method which eliminates the problem by omitting the retraction cord. It consists of individual tube impressions of the teeth and provides for their alignment at the same time.

## Materials

The required materials include: unannealed copper bands or shells (Masel copper band shells No 30 hard, available from Isaac Masel Co, 3021 Darnell Rd, Philadelphia 19154; or the Revere line band kit, available from Ash Temple); regular and heavy-bodied thiokol or silicone impression material; disposable plastic tray coated with adhesive (Getz 400 Sani-trays). A lower tray is adequate for upper anterior teeth if the palatal area does not have to be included.

## Technique

1. Prepare the teeth in the usual manner with either a shoulder or chamfer.
2. Fit the unannealed band to suit the gingival contour so that it passes easily under the gum and is slightly larger than the tooth circumference.
3. Punch numerous retention holes through the band with a No 1 round bur held in the air-driven handpiece. Paint the gingival third with rubber adhesive so that the thiokol will not pull away from this critical area. If desired, the whole band may be coated instead of making the holes but this makes the band sticky and awkward to handle, even when the adhesive is dry.
4. Mix sufficient amounts of the heavy-bodied material adequate for one or two impressions at a time. Wait until the material loses its stickiness and then fill each band by picking up some material in the fingers and pushing it into the band.
5. Seat each band, starting with the preparation furthest on the left for convenience. It is not necessary to hold each band until the impression material sets.
6. Mix a quantity of the regular-bodied material, fill the previously coated plastic tray and seat it over the bands while the thiokol is soft, making sure the bottom of the tray does not touch the incisal edge of the bands.
7. Remove the tray with a straight pull after the thiokol has set completely.

The tray impression, with the individual bands in their correct alignment and with each tooth detailed in the bands, will come out in one piece without damaging the anterior gingiva.

In the rare event that one of the tube impressions is defective, one can take an individual band impression of the tooth in question, make a single die and seat the die in the tray impression for correct alignment. When taking an individual impression, one must be careful not to squeeze the band during removal and thus distort it. By threading a piece of dental floss through a couple of the holes near the incisal edge of the band before it is filled, one can pull the band from the tooth after the impression material has set without causing any distortion.

Dental laboratories now employ die materials like epoxy resins, which are readily used with this type of impression. Consequently, we no longer need copper plated dies even for swaging a platinum matrix for porcelain jacket restoration.

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# Oral tuberculosis—its similarity to oral carcinoma

**P. Cleaton-Jones, BDS, MB BCh (Rand)**
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*The lesions of oral tuberculosis and oral carcinoma may look alike as indicated in this report. Microscopic examination of specimens obtained from the oral lesion and one of the cervical lymph nodes, as well as bacterial culture of the sputum, were necessary to establish the definitive diagnosis.*

*Les lésions de la tuberculose et de l'épithélioma de la cavité buccale peuvent se ressembler comme l'indique ce rapport. On a dû procéder à l'examen microscopique d'un échantillon prélevé d'une lésion buccale et d'un autre échantillon provenant des ganglions cervicaux, ainsi que d'une culture bactérienne de crachat pour établir le diagnostic définitif.*

Muroff,[1] reporting a case of oral tuberculosis, pointed out that the clinical appearance of an oral tuberculous lesion is not pathognomonic. He stated that diagnosis is only possible from microscopic examination of biopsy material, sputum smears and cultures. This paper presents a case of oral tuberculosis mimicking a malignant ulcer.

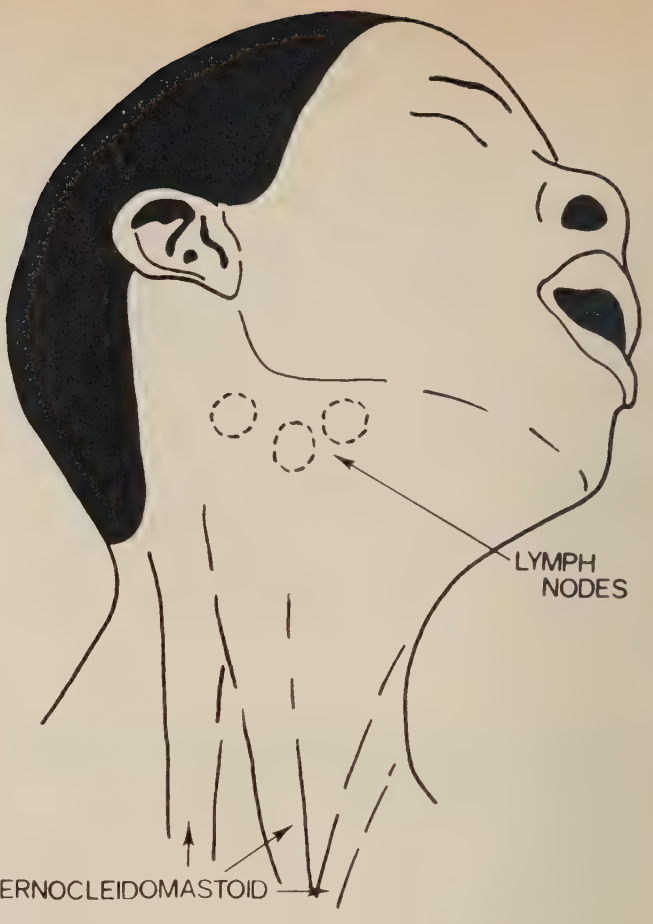
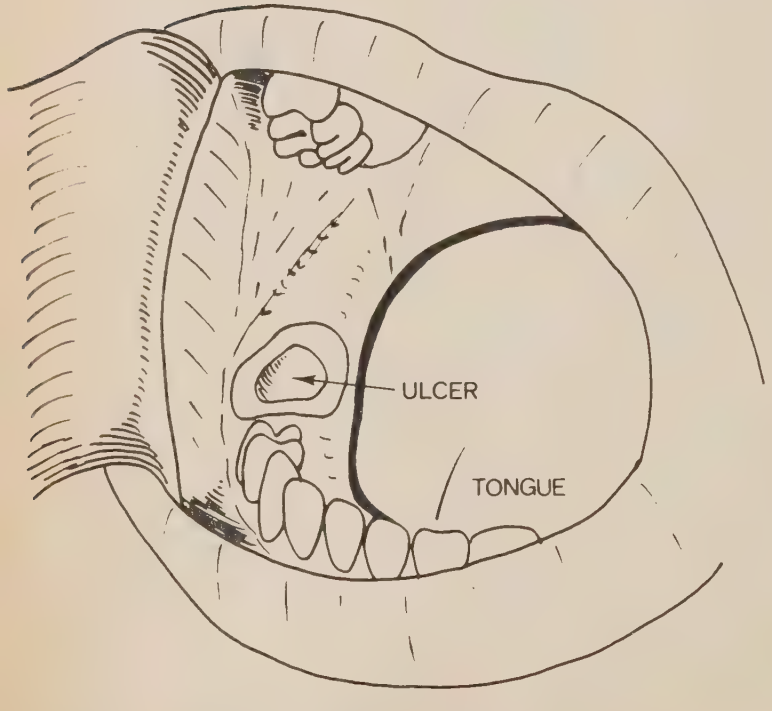



Fig 1 Diagram showing the position of the enlarged lymph nodes.

Fig 2 Diagram of the position of the intra-oral ulcer.




## Report of case

*History* — A 53 year old Negroid male, a farm labourer, came to the Baragwanath Hospital, Johannesburg, with a three week history of weight loss and multiple swellings on the right side of his neck. He had suffered from pulmonary tuberculosis, which was successfully treated some 20 years previously. He had a high daily alcohol intake, and had smoked both cigarettes and a pipe for most of his adult life. No respiratory or intra-oral symptoms were discernible and prior to the onset of the present complaint he was in good health.

*Physical examination* — Examination of the patient revealed signs of recent weight loss. A number of hard, discrete lymph nodes of approximately 1 inch in diameter were seen in the right submandibular and upper cervical region (Fig 1). These were fixed to the underlying tissues but the skin was mobile and healthy. The nodes were not matted together.

Intra-oral examination revealed that the lower right molars were missing, apparently having been extracted some years before. In this area there was an ulcer of approximately 1 inch by half an inch in size (Fig 2). Its edge, which was hard and elevated, had the rolled appearance considered typical of a malignant ulcer.[2] The base was firm and attached to the bone, while the floor consisted of necrotic material and exposed bone.

The tentative diagnosis at this stage was that of a malignant oral ulcer, probably a squamous carcinoma, with secondary spread to the regional lymph nodes.

*Radiographic findings* — An x-ray examination of the mandible revealed some bony erosion immediately below the ulcer compatible with local malignant invasion. Chest radiographs showed a small radiopacity in the right lung apex. This appeared to be a healed calcified tuberculous lesion and corresponded with the previous history of tuberculosis.

*Microscopic examination* — The ulcer and one of the lymph nodes were also biopsied. Microscopic examination showed a chronic inflammation in the gingiva characterized by tubercles consisting of epithelioid granulation tissue and Langhans giant-cells (Fig 3). The lymph node also displayed caseation, epithelioid granulation tissue and Langhans giant-cells (Fig 4). These features are consistent with tuberculosis, not malignancy. Acid-fast bacilli were not evident in sections stained by the Ziehl-Neelsen method.

Sputum smears showed no acid-fast bacilli either, but culture eventually isolated the *Mycobacterium tuberculosis,* which confirmed the diagnosis.

*Treatment* — We then commenced anti-tuberculosis therapy with streptomycin, isonicotinic acid hydrazine (INH) and para-aminosalicylic acid (PAS). Ten days later the ulcer had completely healed and the lymph nodes were much smaller. The patient was then discharged on maintenance treatment.

## Discussion

In view of the initial clinical findings the diagnosis of oral malignancy with secondary regional spread was a reasonable one. In such cases, however, a biopsy must always be performed to confirm the diagnosis and type of malignancy. This is necessary for treatment planning and prognosis.

It is not certain whether this patient's tuberculous infection was primarily oral or secondary to pulmonary tuberculosis. The patient's occupation as a farm labourer involved milking cows and if he drank infected unpasteurized milk it is possible that he had a primary oral infection. On the other hand most cases of oral tuberculosis are secondary to pulmonary lesions[3] and the patient had suffered from pulmonary tuberculosis many years earlier. The calcified pulmonary scar visible on radiographs may have contained the bacilli. They remain active for many years and are released if resorption takes place. This is particularly likely as there was no other evidence of tuberculosis in this patient.

A culture of the organism must always be attempted. This is usually done by inoculating a guinea-pig with infected material. When submitting specimens for inoculation the preservative fluid should be saline and not formalin. A conventional formalin fixative would kill the organisms, yielding a false negative result.


## Summary

A case of oral tuberculosis masquerading as a malignant ulcer with regional lymph node spread is reported. To determine the correct diagnosis biopsy and culture were necessary.



The author expresses appreciation to Doctor L. Faivelsohn, medical superintendent of Baragwanath Hospital, for permission to publish this report.



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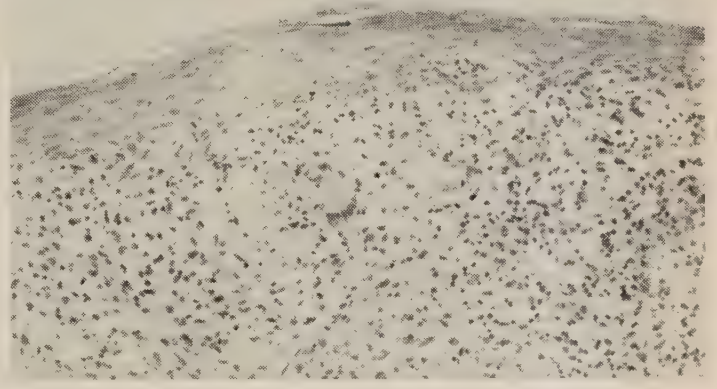


Fig 3 Photomicrograph of a section from the gingival biopsy showing a Langhans giant-cell in the centre of the field. H and E, x630.

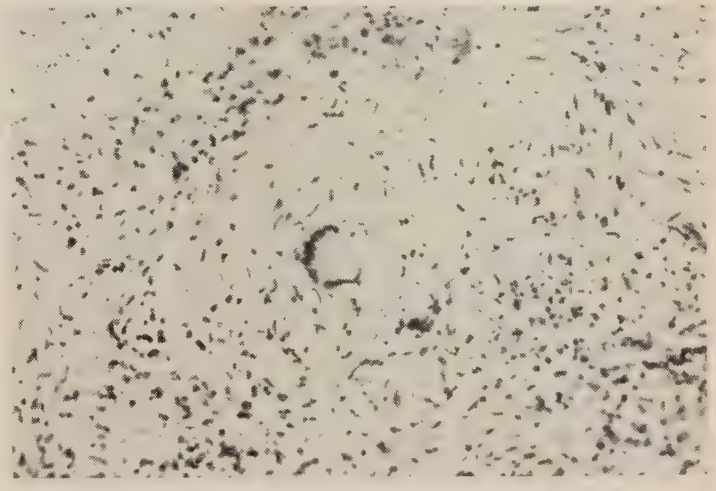


Fig 4 Photomicrograph of a section from the lymph node biopsy. Note the Langhans giant-cell in the centre of the field surrounded by caseation necrosis, epithelioid cells and lymphocytes. H and E, x1,000.

## Book Reviews

### Review of Dentistry: Questions and Answers

*M. K. Hine, ed. Ed 5. St. Louis, The C. V. Mosby Company, 1970. 596 p. $16.80*

This fifth edition follows the basic pattern of its predecessors but has been considerably updated with some 30 additional pages of questions and answers.

The 27 contributing authors are all highly regarded in their particular fields. They accentuate the value of this book by expressing varying opinions on certain controversial subjects.

The book is invaluable for candidates intending to sit for American state or national board examinations as well as for dental teachers and practitioners. Its systematic organization and the consequent ease with which one can find information quickly will satisfy a long-felt need.

*A. G. Racey*

### Dental Laboratory Technology

*Nicholas Martinelli. St. Louis, The C. V. Mosby Company, 1970. 285 p. Illus. $14.45*

This book has been prepared for the instruction of technical students at the community college level. Unlike the manuals provided for the same purpose in the Armed Services, this one contains many illustrations and techniques that were developed commercially.

The six sections deal in sequence with a description of modern laboratories and the pertinent equipment. A few pages are devoted to dental materials in common use. The remaining sections describe technical procedures for the fabrication of fixed and removable prostheses. Included are the usual techniques involved in ceramics. Additional information is suggested by a list of references after each section.

Despite the omission of immediate denture laboratory procedures, this text appears to fulfil the author's objectives.

*E. P. Downton*

### Introduction to Hospital Dentistry

*B. L. Douglas, ed. Ed 2. St. Louis, The C. V. Mosby Company, 1970. 186 p. Illus. $13.50*

Doctor Douglas, an authority on hospital dentistry, enlisted 15 other outstanding contributors for the second edition of this valuable book. The text consists of 186 pages divided into 19 chapters and two appendices. It represents an improvement over the first edition.

Intended to acquaint the neophyte with hospital dental practice, the book outlines the code of conduct in hospitals to which all doctors, nurses and employees must adhere. According to the authors, the modern hospital has become a patient care centre from which many services radiate. Because dentistry is one of these services, dentists should be appropriately trained and oriented so that care can be provided when needed. *Introduction to Hospital Dentistry* fulfils this purpose for students and practitioners seeking the requisite knowledge.

The book deals with many topics, some more significant than others. The chapters on the philosophy of hospital dentistry, medical records, the dentist in the operating room, instrument setups, oral pathology and the clinical laboratory, and establishing a hospital dental department are extremely useful. Appendices A and B also contain significant information.

Although some chapters seem superficial, it must be remembered that the book is only an "introduction" to hospital dentistry. The result is a good handbook which points out for the novice many of the problems he is likely to encounter. Part of the book's value is the fact that so few of its kind exist.

*K. C. Bentley*

### Dental Examination Review Book

*A. F. Gardner, ed. Vol 2. New York, Medical Examination Publishing Co, Inc, 1970. 345 p. $7.50*

This publication covers operative dentistry, complete denture prosthodontics, crown and bridge prosthodontics, nutrition, partial denture prosthodontics, dental materials, paedodontics and orthodontics.

Though intended primarily for students preparing for American national board examinations, the book is also useful for general practitioners and specialists who desire a quick review of the pertinent fields. But its principal value is for the student who seeks a quick check of his basic knowledge.

A problem common to all review books is that questions are taken out of context and answers do not necessarily reflect a true understanding of the issues. Though opinions on given topics may vary, the answers tend to portray a particular author's view.

Subject to the foregoing qualifications, this book has value for Canadian dentists and students. It is easy to read. The 2,540 multiple choice questions are classified by subject, with references to correct answers at the back of the book.

*R. F. Harvey*

### Epithelial Tumours of the Salivary Glands

*R. W. Evans and A. H. Cruickshank. Philadelphia and Toronto, W. B. Saunders Company Canada Limited, 1970. 299 p. Illus. $15.70*

This book about the microscopic appearance of primary salivary gland tumours is directed at pathologists, oral and general surgeons and otolaryngologists who have responsibility for diagnosis and prognosis in this area.

The authors are well known in the field of diagnostic pathology, both being members of the staff of the University of Liverpool. Doctor Evans' *Histologica 1 Appearances of Tumours* is a stand-by text and Doctor Cruickshank is particularly interested in salivary glands.

Of the 13 chapters, the first two are devoted to background information. The embryological development of salivary glands is related to their position and structural relationship to adjacent tissues, thus explaining, among other

things, the association with lymphoid tissue and sebaceous glands. Chapter 2 discusses the incidence of salivary gland tumours in various parts of the world and brings in the question of age incidence and site distribution. The chapter closes with a suggested classification of the various tumour entities.

The remaining 11 chapters, forming the body of the book, deal with the individual tumours. Each is described in terms of gross clinical features, histological structure and ultrastructure as seen by the electron microscope. This is followed by an account of the histogenesis of the particular neoplasm.

The behaviour of these tumours comes in for comment, which is appropriate since it is well known that the benign or malignant behaviour of some salivary gland tumours may not be apparent from their histological features.

This book is a study in depth of salivary gland tumours and should be a rewarding experience to anyone responsible for the diagnosis and treatment of such lesions.

*H. A. Hunter*

### A History of Dentistry in Canada

*D. W. Gullett. Toronto, University of Toronto Press, 1971. 308 p. Illus. $15.00*

> *"The present state of things is the consequence of the past; and it is natural to enquire as to the source of the good we enjoy or the evils we suffer. If we act only for ourselves, to neglect the study of history is not prudent; if entrusted with the care of others, it is not just."*

Although Samuel Johnson penned these words about 200 years before Don Gullett offered his magnificent contribution to the literature of Canadian dentistry, the observations are cogently relevant and unusually pertinent to *A History of Dentistry in Canada*. "The progress of the past is the encouragement for the future. No viable profession can afford to clip the coupons of the history of its past and take it all for granted . . . ."

Five years of undeviating dedication by Canada's most distinguished dentist – a dedication that took Doctor Gullett to reference libraries and to public archives from coast to coast in Canada and to the United Kingdom in search of the voluminous material from which he has meticulously selected the content – have resulted in a highly readable and intensely interesting history of the dental profession in Canada.

From the evidence of archaeological findings of dentistry as it was practised by the first Canadians prior to 1500, the story of Canadian dentistry progresses through 19 descriptive chapters concluding with the decade between 1955 and 1965. The early and late colonial periods were characterized by the development of dentistry from an artisan's craft to the threshold of a profession.

The 35 year span between 1870 and 1905 witnessed the laying of the three foundation stones without which no vocation can erect a professional structure – formal education, a vehicle for professional and scientific communication, and an organizational framework, locally, provincially, and nationally. From 1905 through the following six decades, the profession in Canada made rapid advances in the art and science of dentistry. But more importantly, perhaps, it developed an ever-increasing social sensitivity from which it was able to recognize and work toward the goal of dental health for the nation as a required and practical objective.

What impressed this reviewer, time and time again, were the herculean efforts of individuals from which those of us privileged to be part of the contemporary scene have been the beneficiaries. The creation of a legal basis for practice, the development of formal education, the creation of a periodical literature, the establishment of an organizational structure, the involvement in public health, the autonomous establishment of dental services in the armed forces, and a host of other activities just did not happen – they were caused. And perhaps many of us take far too lightly and with insufficient regard to its nurturing the legacy which has been left to us by those who have gone before. One cannot read *A History of Dentistry in Canada* without, I believe, having his sense of dedication to his profession both renewed and enhanced.

The book has one weakness about which the author could do little. If, up to this time, one dentist more than any other could be identified as having made the most meaningful and significant contribution to the total development of his profession in this country then, surely, Doctor Gullett is that person. The book takes no cognizance of that contribution. It is regrettable that at least a portion of *A History of Dentistry in Canada* could not have been autobiographical.

*W. J. Dunn*

## Additions to the Library

AMERICAN PUBLIC HEALTH ASSOCIATION. Conference on health services for children and youth. March 18-20, 1969. Chapel Hill, NC. (American Journal of Public Health, Suppl to April 1970. Vol 60, No 4, 1970) 133 p

BASMAJIAN, J. V. Grant's method of anatomy; by regions, descriptive and deductive. Ed 8. Baltimore, The Williams & Wilkins Co, 1971. 707 p. Illus. $17.05

BRAHE, N. B. We like these ideas. Appleton, Wisconsin, Project D Publications, 1970. 611 p. Illus. $32.00

BRANDHORST, O. W. History of the American College of Dentists; the first fifty years. 1970. 571 p. Illus

COSTICH, E. R. and WHITE, R. P. Fundamentals of oral surgery. Philadelphia, W. B. Saunders, 1971. 235 p. Illus. $11.35

CRANIN, A. Oral implantology. Springfield, C. C. Thomas, 1970. 340 p. Illus. $31.00

GARFIELD, S. Teeth – teeth – teeth – the incredible world of teeth. Beverly Hills, Calif, Valiant Books Publishers, 1969. 448 p. Illus. $17.50

GULLETT, D. W. A history of dentistry in Canada. Toronto, University of Toronto Press, 1971. 308 p. Illus. $15.00

INTERNATIONAL SYMPOSIUM ON FLUORIDATION AND PREVENTIVE DENTISTRY, October 12, 1969, New York City. Co-sponsored by the American Dental Association and the Fédération Dentaire Internationale. Chicago, 1969. 101 p. Mimeo

JOHANSON, G. Age determination from human teeth; a critical evaluation with special consideration after fourteen years of age. (Odontologisk Revy, Vol 22, Suppl No 21, 1971) 126 p. illus

LACASSE, F. D. Economie des soins dentaires: connaissances acquises. Rapport final. Montréal, Association des Chirurgiens-Dentistes de la Province de Québec, 1971. 110 p

LANGE, D. and SCHROEDER, H. E. Cytochemistry and ultrastructure of gingival sulcus cells. (Helvetica Odontologica Acta, Vol 15, Suppl VI, April 1971) pages 65-86. Illus

MALMO (SWEDEN). SCHOOL OF DENTISTRY. Annual publications, Vol 13, 1970. Malmo 1971. 53 p

McHUGH, W. D. Dental plaque. A symposium held in the University of Dundee, 22-24 September, 1969. Edinburgh, Livingstone, 1970. 298 p. Illus. $16.25

PUERTO RICO UNIVERSITY. SCHOOL OF DENTISTRY. The preventive dentistry technician . . . concept and utilization. San Juan, University of Puerto Rico, October 1, 1970. 37 p. Illus

SANGIUOLO, R. Précis d'équilibration des prothèses complètes. Paris, Julien Prélat, 1971. 176 p. Illus. 46 F

SCOTT, J. H. and SYMONS, N. B. B. Introduction to dental anatomy. Ed 6. Edinburgh, Livingstone, 1971. 448 p. Illus. $12.50

ROBERTS, D. H. and SOWRAY, J. H. Local analgesia in dentistry. Bristol, John Wright & Sons Ltd, 1970. 135 p. Illus. $8.95

## Educational Films

The Canadian Dental Association sponsors the distribution of the following eight 16mm educational films which may be borrowed without cost. The films may be booked from Modern Talking Picture Service, Inc, 1875 Leslie Street, Don Mills, Ont. Telephone: 444-7347.

TEETH ARE TO KEEP col, sd, 11 min. A National Film Board production. This film explains, using animation, how children should remember to care for their teeth. (For elementary schools only.)

DANNY'S DENTAL DATE col, sd, 22 min. Using puppets, this film discusses the teeth and what they mean to everybody. (For elementary schools only.)

THE CHALLENGE OF DENTISTRY col, sd, 28 min. A thoughtful message for young men and women interested in a career in dentistry; subjects to take in school, nature of professional study, cost, etc.

DENTISTRY THROUGH THE AGES OF MAN col, sd, 23 min. This film acquaints the viewer with key concepts of modern dentistry and stimulates a desire to take advantage of its benefits. After a brief introduction contrasting the world of modern dentistry with that of prehistoric man, the film demonstrates the need for dental care throughout life, beginning with infants and progressing through childhood, youth, adulthood and old age. (Health – general interest.)

WHY FLUORIDATION? col, sd, 14 min. The subject of fluoridation is covered in depth in this excellent film. Answers are given to the effectiveness and safeness of using fluoride. This film is a must for all to see how the use of fluoride in water can provide stronger and healthier teeth. (Health – general interest.)

ORAL CANCER, col, sd, 31 min. Presents a detailed examination for clinically detectable cancer of the mouth, illustrating with data the value of early detection. (Available to the dental profession only.)

ORAL EXFOLIATIVE CYTOLOGY col, sd, 18 min. Smear technique for earliest detection of possible mouth cancer. (Available to the dental profession only.)

THE DENTIST AND CANCER col, sd, 21 min. Stresses methods of biopsy, prompt treatment and oral prostheses. (Available to the dental profession only.)

## Service de cinémathèque

Les films suivants de 16mm sont mis à votre disposition par l'Association Dentaire Canadienne et ils sont prêtés gratuitement. Le titre marqué d'un "X" est offert en français ou en anglais, les autres existent en anglais seulement. Les demandes de réservations doivent être faites directement au Service de Cinémathèque Inc, 485 rue McGill, Montréal 125, Qué. Téléphone: 878-3644

IL FAUT GARDER SES DENTS (TEETH ARE TO KEEP) coul., son., 11 min. Une réalisation de l'Office national du film, utilisant le dessin animé. Ce film explique comment les enfants doivent se rappeler le soin à donner à leurs dents (Santé – écoles élémentaires).

LE RENDEZ-VOUS DENTAIRE DE DANNY (DANNY'S DENTAL DATE) coul., son., 22 min. Faisant usage de marionnettes, ce film traite des dents et ce qu'elles signifient pour tout le monde (Santé – écoles élémentaires).

LE DEFI DE L'ART DENTAIRE (THE CHALLENGE OF DENTISTRY) coul., son., 28 min. Un message bien fondé adressé aux jeunes hommes et femmes intéressés à la carrière dentaire; les sujets qu'il leur faut apprendre à l'école, la nature des études professionnelles, leur coût, etc. (Carrière – écoles).

L'ART DENTAIRE A TRAVERS LES AGES DE L'HOMME (DENTISTRY THROUGH THE AGES OF MAN) "X" coul., son., 23 min. Après avoir établi le contraste entre le monde moderne de l'art dentaire et celui de l'homme préhistorique, le film démontre le besoin des soins dentaires durant toute sa vie, depuis la tendre enfance, à l'adolescence, à la pleine maturité et la vieillesse. Fait aux Etats-Unis, ce film est offert dans ses deux versions française ou anglaise, on est donc prié de spécifier laquelle on désire (Santé – intérêt général).

POURQUOI LA FLUORATION? (WHY FLUORIDATION?) coul., son., 14½ min. (admis pour la télévision). Un beau film qui renseigne sur l'efficacité, la sûreté, la possibilité de procéder sans aucun danger à la fluoration. Ce film tranche plusieurs questions souvent posées sur le sujet et il le fait sans contredit (Santé – intérêt général).

CANCER DE LA BOUCHE (ORAL CANCER) coul., son., 31 min. Ce film présente un examen détaillé des manières de découvrir en clinique la présence du cancer de la bouche, illustrant avec preuve à l'appui l'importance de déceler la maladie dès son début (réservé pour les membres de la profession).

CYTOLOGIE D'EXFOLIATION DE LA BOUCHE (ORAL EXFOLIATIVE CYTOLOGY) coul., son., 18 min. La technique de détection hâtive du cancer de la bouche par enduits (réservé pour les membres de la profession).

LE DENTISTE ET LE CANCER (THE DENTIST AND CANCER) coul., son., 21 min. Ce film souligne les méthodes de biopsie et leur traitement rapide, ainsi que les prothèses dentaires (réservé pour les membres de la profession).

# Misguided oracle

What can be said for Mayor Jean Drapeau, who denies the children of Montreal the benefits and their parents the financial savings derived from fluoridation, because of his personal opinion that such water treatment amounts to a violation of civil rights?[1]

"A majority collective consensus," according to Mr. Drapeau, "cannot replace the consent of the individual when dealing with measures affecting the physical person. . . . Before one can justify any interference with the physical person of a human being, to the extent of making it compulsory for him to drink or eat anything against his will, there must exist a situation which is truly serious in so far as others are concerned." And dental disorders, in the view of the mayor, do not constitute a direct threat for other citizens.

We submit that Mr. Drapeau is wrong—dead wrong — when he claims that by depriving them of fluoridation he does not expose citizens to any harm nor pose any serious threat. How can he justify his stance when the average youngster in Quebec needs six fillings and two extractions, and when a third of the province's girls and a quarter of its boys under 15 have malocclusion? And what good is a principle which contributes significantly to treatment needs that run double those of a comparable US population?[2]

To all of which the good mayor has some ready answers, like: "Man's right to physical integrity is not based on a sum total, even a majority, of wishes or aspirations; it cannot be eliminated either by such a sum total of aspirations." And then this: "The supporters of fluoridation can obtain the advantages and benefits they seek by other means if they really want to."

We wonder how well all this sits with the unemployed, and those who struggle daily to make ends meet. We are well aware of the relative merits of fluoridation and its alternatives, and we prefer to put our faith in courts of law which rule that fluoridation does not infringe personal rights. And when it comes to the sanctity of the individual, we only ask that its protagonists pay equal heed to the needs of their hapless peers.

1 Drapeau, Jean. Fluoridation. Canada Month. June 1971.

# Malpractice suits

One of the thorniest of all legal and moral problems in the United States is that of soaring premiums for malpractice insurance.

The highest premium is said to be $9,000 a year for each member of a group of medical associates, one of whom had been named — but not yet tried — in a malpractice suit.

The average premium for US surgeons and anaesthesiologists is reputed to be between $5,000 and $6,000 this year. The lowest premium estimate is reportedly $2,000.

This is money a doctor must earn before he can begin to pay his nurse, receptionist or office rent. It is money that patients must provide in increased fees without achieving any medical purpose.

One of the villains is the big-hearted American jury which, assuming that an insurance company will pay the claim, awards great sums for what are sometimes minor hurts. There are others that compound the problem, and there also is the moral imperative that no person, believing himself injured, can be denied a day in court. But it all adds up to making health care costlier for the public.

Obviously, something must be done to ease the malpractice insurance problem. One proposal is to require all insurance companies to share equally in guaranteeing protection. Still another envisions a medico-legal pre-trial review board to screen complaints of negligence.

Though there may be no single good solution, some way must be found to bridle the beast. Otherwise, the lesson of the market place tells us that governments must intervene where private endeavour cannot make the system work. When this happens they are not acting in the interest of any one group. They are acting in the interest of the public.

2 Simard, Paul and Lussier, J.-P. Les soins dentaires au Québec; besoins en général; besoins dentaires des personnes de 18 ans et moins; conclusions. J Canad Dent Ass 36:452, 1970.

# Bravo!

La nouvelle que le Collège des Chirurgiens-Dentistes de la Province de Québec commencera à tenir, à partir du mois d'octobre 1971, la comptablilité des crédits accumulés pour l'éducation permanente a probablement dû prendre plusieurs praticiens par surprise. Et pourtant, toute la profession en Amérique du Nord ne parle presque que de ça depuis près d'un an. Le Québec prend encore une fois la tête de file en introduisant un système qui deviendra rapidement universel. D'ici le pré-requis des crédits avant le renouvellement de la licence, il n'y a qu'un pas. L'éducation continue de l'homme professionnel prend donc un caractère plus officiel, et c'est pour le bien de tous. Le public en profitera et la profession continuera son essor encore plus rapidement. Bravo!

Ceci dit, il faut quand même se rendre compte que le système, tel que présenté par le Dr Paul Dionne, responsable du Comité d'éducation permanente du CCDPQ, dans sa lettre aux praticiens québécois, ne représente qu'un premier pas. Un premier pas gigantesque peut-être mais qui devra permettre une marche sérieuse et facile de la profession vers son épanouissement. Et c'est là probablement que les premières critiques se feront. Le comité n'a pas rendu la tâche facile si le praticien ne peut, ou préfère ne pas se déplacer loin pour obtenir ses crédits.

La première erreur qui saute aux yeux, est le fait que le comité n'est pas entré en consultation avec les sociétés locales et régionales qui présentent déjà des programmes scientifiques. Ce sont ces organismes qui sont le plus à même à faciliter l'éducation du praticien de leur ville ou de leur région. Nous voyons donc un mouvement centralisateur contrôler l'éducation permanente à partir du Collège, alors que le Collège aurait dû employer les structures déjà présentes. Au lieu de cela, la participation à une réunion d'une société dentaire est limitée à deux réunions (c'est-à-dire deux crédits sur 12) et doit être commanditée par le Collège.

En deuxième lieu, le comité propose de donner cinq crédits pour un cours universitaire de trois jours mais n'indique aucun crédit pour un cours universitaire d'une durée de un ou deux jours. Oubli involontaire? Espérons-le.

Troisièmement, la participation à un congrès national ou provincial ne donne que trois crédits. Ces congrès durent généralement trois jours, tout comme un cours universitaire de trois jours qui donne droit à cinq crédits. S'il y a une différence dans l'esprit du comité, elle n'a pas encore été expliquée.

Quatrièmement, on ne donne aucun crédit pour ceux qui enseignent aux universités, dans les hôpitaux qui ont un programme d'éducation pour les internes, ceux qui prennent l'initiative de donner des conférences et des tables cliniques à leurs confrères, et ceux qui écrivent des articles scientifiques publiés dans les revues professionnelles. Voici un oubli plus ou moins éclatant. La fleur de notre profession ne reçoit aucune reconnaissance pour l'immense travail qu'elle fournit jour après jour. Ce n'est vraiment pas juste.

Finalement, il faut reconnaître que toutes les régions du Québec n'ont pas les mêmes besoins et qu'il faut laisser aux sociétés locales le choix des sujets qui intéressent les praticiens de leur région. Ceci mènera éventuellement vers une plus grande homogénéité de la profession qui deviendra alors apparente dans quelques années, mais laissons au dentiste l'occasion de choisir les sujets dont il a le plus besoin.

Tout ce qui vient d'être écrit ci-haut ne représente naturellement que l'opinion d'un praticien québécois. Nous aimerions connaître l'opinion de nos lecteurs sur cet important sujet. Voici l'occasion de présenter vos idées à vos confrères par l'entremise du *Journal de l'Association Dentaire Canadienne* et d'aider le Comité d'éducation permanente dans la dure tâche qu'il s'est choisi. Nous comptons sur vous.

*N.D.L.R. — Le Journal a appris que ces renseignements ont été transmis prématurément et que le problème sera discuté au Collège des Chirurgiens-Dentistes de la Province de Québec.*

# Letters/Courrier

### Root perforation

Doctors Schommer and Marshall are to be congratulated on an extremely interesting case report. Their article in the September issue demonstrates the hazards of basing an exact diagnosis solely on radiographic interpretation. It was impossible to detect the perforations on the pre-operative film. If radiographs are exposed at different angulations, however, there is a greater possibility of spotting unusual conditions. Extra canals and perforations are often disclosed by directing the central ray from both a distal and mesial angulation as well as directly over the suspected tooth.

It is not surprising that the perforations were not completely sealed by the technique described in the first attempt. No mention was made of debriding them and measuring trial points. To attain success, perforations should be viewed as separate canals and treated by the customary endodontic technique.

The article did not mention whether the perforations opened on the lingual surface. If this were so, it would certainly militate against success with almost any treatment technique.

Figure 3 pictured a tooth with only a very thin mesial wall remaining after the old amalgam restoration had been removed. Though it is hazardous to predict from a single radiograph, such a tooth can be a prime candidate for a subgingival fracture.

The final film (Fig 9) was taken about one year after performing the apicoectomy. It shows excellent healing but it is too short a period to rate the treatment as acceptable.

I certainly commend the authors for demonstrating what techniques are available in the endodontic armamentarium to conserve an otherwise hopelessly involved and important abutment tooth.

*Isadore Wolch, DDS*
*203 Edmonton St*
*Winnipeg 1, Man*

# EXECUTIVE DIRECTOR'S PAGE

### Competition Act

During the third session of the 28th Parliament of Canada the Hon. Ron Basford presented to Parliament Bill C-256, "The Competition Act," for first reading. The act is intended to replace the existing Combines Investigation Act and unlike the latter bill covers personal, including professional, services as well as commodities.

Representatives of the Association were invited to meet with the Minister to discuss the implications of the act with respect to the practice of dentistry. The Association's president, president-elect, editor and executive director met with Mr. Basford on September 20, 1971.

As a result of the meeting the following information and suggestions are provided for the benefit of Association members:

1. The Competition Act in its present or amended form is not likely to be presented for further consideration by Parliament until early in 1972.
2. The Minister is prepared to consider amendments that improve the application of the act so long as they do not alter its fundamental objectives.
3. Fee guides or schedules promulgated by the profession that by inference or otherwise establish an agreement among practitioners to charge set fees would be prohibited.
4. Distribution of formulae for establishing fees, e.g. the CDA's relative value method of determining fees that do not have dollar values as a part of the formula, would be acceptable.
5. The presence of lay representatives on a dental board would not make the development and circulation of a fee schedule legal if the exercise were illegal without the lay representatives on the board.
6. To the question, "Would it be legal for syndicates to establish and circulate fee schedules?" as seems the case from Section 89 of the act, the Minister abstained from giving a yes or no answer. His department had apparently not considered this question heretofore. He said it would.
7. The exemption of dentistry from the terms of the act as outlined in Section 92 cannot be accomplished by a federal statute since the practice of dentistry is governed by provincial acts. Corporate members wishing to have dentistry exempted in their respective provinces must apply to their own provincial governments.
8. It was suggested that corporate members seek the advice of their legal advisers with regard to the relationship between their provincial dental acts and the new Competition Act.
9. As it will be some months before the Competition Act can be adopted, provincial applications to exempt dentistry for purposes of the act should be deferred until the terms of the new legislation are more definite.

# CDA acts on dentifrices, materials, devices; postpones grouping of specialties

The CDA has taken the first steps in a program to develop Canadian specifications for dental materials and devices, and will inform dentists about dentifrices with proven therapeutic value that may be recommended to their patients as part of a caries-preventive program. The decision was one of many taken at the national convention in Ottawa September 27-October 2.

The Association also postponed a move to streamline the specialties into four groups, identified as paedodontics, public health dentistry, restorative dentistry, and oral medicine and surgery.

### Ottawa draws record attendance

Attendance at the national convention in Ottawa reached 2,540. Of those who attended, 1,360 were CDA members, 10 dentists were from abroad, 110 were dental hygienists, 60 were dental assistants and 300 were exhibitors. There were also 700 wives registered.

*Materials and devices*

Terms of reference were approved for the Committee on Standards for Dental Materials and Devices, which was formed last year as a standing committee of the Council on Research. They authorize the committee to develop Canadian specifications (in liaison with the Canadian and International Standards Associations) and to further a program for testing, evaluation and certification in Canada.

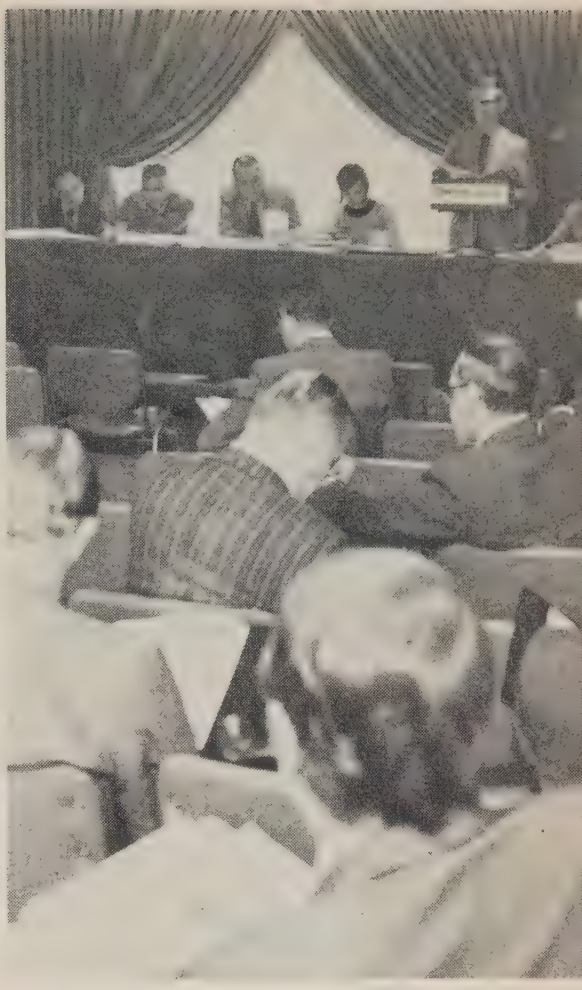
The committee will serve in an advisory capacity and will establish ethical guidelines for advertising and exhibiting dental materials and devices.

*Specialties*

The specialty issue produced the most spirited debate ever witnessed at a Board of Governors session. Those who favoured the grouping principle contended that the measure was necessary in order to limit uncontrolled proliferation of the specialties. Opponents countered that grouping distorts but does not eliminate the problem. They also argued vigorously against the proposed alignments. A compromise was finally hammered out directing further study of the principle of grouping but also substituting more stringent criteria for the recognition of specialty areas. They stipulate that:

1. The area shall be one for which specially trained dentists are needed to fulfil the profession's responsibility for promoting and improving the health and welfare of the public.
2. The area shall represent a substantial field of practice which calls for special basic science and clinical knowledge and skills requiring study and extended clinical and laboratory experience beyond the accepted undergraduate training in order to perform services of an unusual or difficult nature.
3. The area shall be one in which recognized educational institutions or teaching hospitals have developed a sufficient number of courses so that opportunities for advanced education and experience are available to those seeking programs of education in this special area. The area of practice need not be homologous to that of an undergraduate department in a dental school since such departments are organized to present teaching material and not to define a division of practice.
4. The area shall be one in which public and professional need for such special services shall have called into existence a reasonable number of practitioners whose knowledge and skills are readily available.
5. The area shall be one in which the dentist refers patients or seeks consultation in order to provide a special health service.
6. The area shall be one in which there is evidence that a significant number of scientific papers and clinics has been presented or in which an increasing number of high quality scientific papers or clinics is being presented.

Panoramic radiographs formed part of the diagnostic and health evaluation service offered convention delegates.



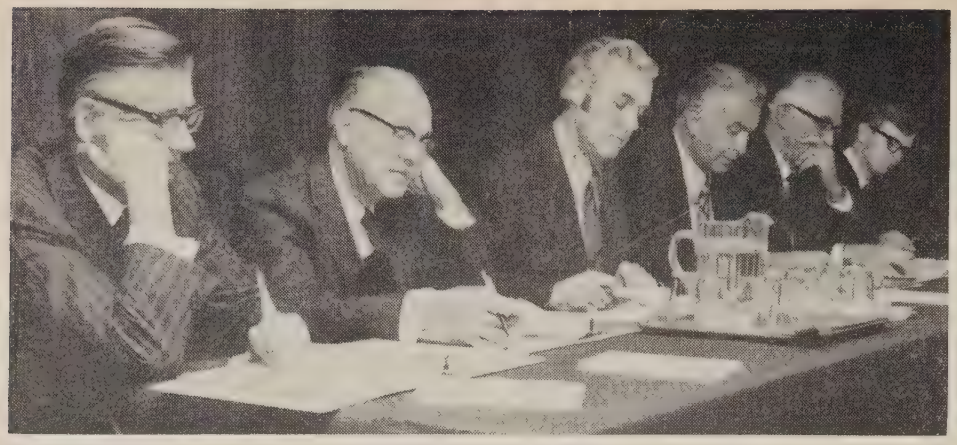
R. A. Gray, Medicine Hat, Alta, chairman of one of the Board of Governors' four reference committees, heard testimony on dental auxiliaries and the CDA Children's Dental Health Plan.

*Therapeutic dentifrices*

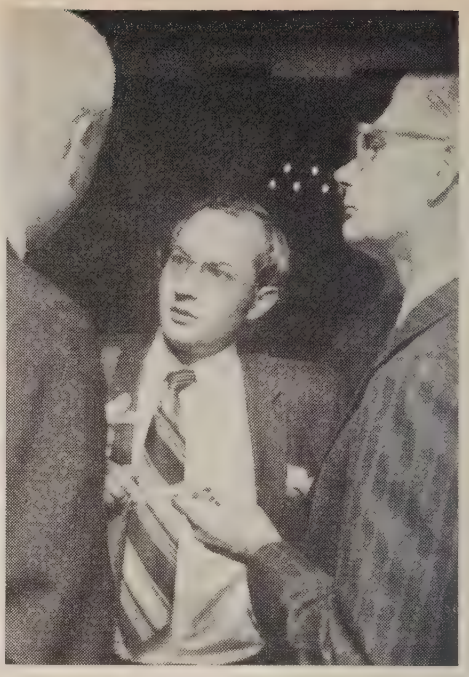
The decision on therapeutic dentifrices represents a sharp departure from the Association's traditional policy of non-involvement with product recognition. Instead, the CDA voted to identify effective dentifrices so that dentists may recommend these to their patients. This identification will be based on official reports of the Council on Dental Therapeutics of the American Dental Association and on the manufacturers' written assurance that dentifrices marketed under a similar brand name in Canada and the US have identical formulations. So far only two fluoride anti-caries brands–Procter & Gamble's *Crest* and Colgate-Palmolive's *Colgate with MFP* have been "accepted" by the ADA.

### New retirement and investment proposals

The Association voted to extend the CDA registered Retirement Savings Plan by adding an interest account in the registered plan and a common stock fund under an unregistered program. All plans would be under the trusteeship of the Royal Trust Company.



After holding open hearings, reference committees went into closed session to prepare their recommendations for the Board of Governors. Picture shows H. N. Beach, Ottawa; J. E. Abra, Winnipeg; J. F. Reid, Vancouver; D. C. Clee, Toronto; James McCutcheon, Edmonton; and F. J. Glover of the CDA staff.
In addition to considering 14 recommendations on Association services, the delegates studied more than 40 reports and resolutions.



Ontario dentists Filip Cappa, W. C. Deacon and H. N. Beach debate a key issue.

In other actions, the Board of Governors commended the Council on Insurance for launching a supplemental income plan (Adjustment Income Dollars–AID Plan). This program–an extension of the CDA Life Insurance Plan –provides support to the family of a deceased participant during settlement of his estate.

The Board also urged the Council to pursue negotiations with the Ontario Dental Association in order to extend the availability of all-risk insurance on office contents to all CDA members.

David K. Peters, St. John's, Nfld, is congratulated on his elevation to president-elect by President Louis Bernier of Quebec City.

## Revamp by-laws for conjoint membership

The CDA also amended its by-laws to recognize the principle of individual voluntary conjoint membership approved last year. The Board had adopted this principle because licence fees and association dues – now collected as one lump sum – may be separated in several provinces.

The amendment, in the form of a new paragraph added to Article II, Section 1 of the By-laws states that: "If a provincial statutory licensing body decides to discontinue funding other provincial and national statutory dental corporations, corporate membership in that province, on the recommendation of the said statutory licensing body and with the approval of the Board of Governors of the Association, may be assigned to another provincial statutory dental corporation whose membership comprises dentists who voluntarily and conjointly seek membership and become members in the provincial corporate body and the Association. Membership in either the Association or the provincial corporate body shall be deemed to be dependent on membership in the other."

## Convention adopts new resolutions on ethics, fluoridation, education

*Ethics*

The Code of Ethics was strengthened by adding a section on "Obligations under Third Party Agency." The new Section 25 states:

1. The payment of fees by public or privately owned insurance systems or through social welfare must not induce the dentist to deviate from his professional obligations to his patient.
2. A dentist must not increase his fees solely because it is known there is a third party reimbursing agency.
3. It is reprehensible for a dentist to commit a deliberate irregularity in billing third party reimbursing agencies.

Also approved were a series of explanatory commentaries on the Code. The commentary on Section 8, which deals with the right to refuse treatment, says "a dentist should treat his patients conscientiously regardless of nationality, race, creed or colour." A further commentary on Section 14 notes that "it is unethical for a dentist to identify himself by title or degree in promotional material for products of a dental supply firm."

*Fluoridation*

In a strongly worded statement, the CDA reiterated its firm support for water fluoridation. Said the resolution: ". . . the CDA recommends that, where possible, the fluoride content of community water supplies be adjusted to the optimal level for maximum prevention of dental decay, as a proven health measure, and for this purpose competent dental,

John "Mr. Canada" Fisher opened the convention on Wednesday evening, September 29, with an inspiring address on the theme of national unity.

medical and engineering advice be sought." It went on to say that ". . . where community fluoridation is not possible, individual methods of supplying fluorides for the protection of dental health should be considered.

*Education*

In other actions, the Association:

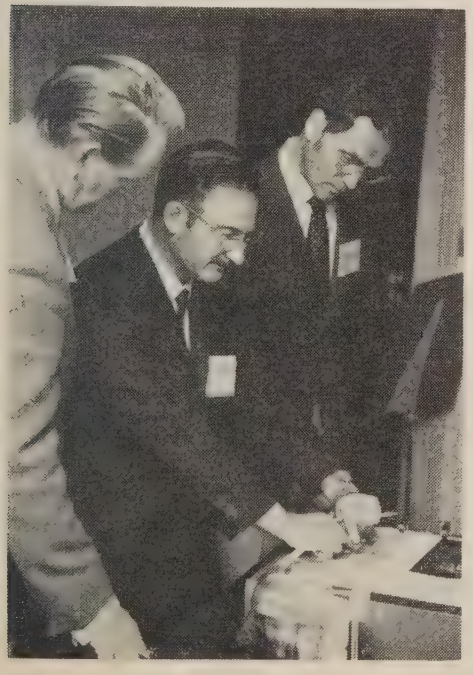
– Endorsed the Council on Education's accreditation of undergraduate dental and dental hygiene programs at Dalhousie University, Halifax;

– Authorized the Council on Education to continue accrediting dental internships and residencies that are part of formal undergraduate, graduate or postgraduate educational programs;

– Authorized the Council on Education to accredit other dental internships and residencies which provide credit toward recognition in a specialty area recognized by the CDA;

– Authorized the Council on Hospital Services to approve other service-

These three convention delegates seemed totally absorbed in one of the scientific exhibits.



Fifteen dental editors from all parts of the nation attended a special luncheon on Thursday September 30, the first meeting of its kind in Canada. Pictured are D. W. Lewis, Toronto, editor of the Canadian Society of Public Health Dentists Newsletter; Col. L. A. Richardson, Ottawa, editor of the Canadian Forces Dental Services Quarterly; Robert LeBlanc, Montreal, editor of Information published by the College of Dental Surgeons of the Province of Quebec; and F. H. Compton, CDA editor.

Louis Bernier

David K. Peters

## DOCTOR BERNIER INSTALLED AS PRESIDENT
## DOCTOR PETERS CHOSEN PRESIDENT-ELECT

Louis Bernier of Quebec City was installed as 52nd president of the CDA. He succeeds W. J. Spence of Toronto.

The new president, like his predecessor, is also an orthodontist. Educated in Quebec, Ottawa and Montreal, he earned a bachelor of arts degree in 1942 at the University of Ottawa and obtained the DDS from the Université de Montréal in 1946. He received a diploma in orthodontics the following year from the Université de Montréal, and became a fellow of the Royal College of Dentists of Canada in 1966.

Doctor Bernier has served organized dentistry in various capacities–first as secretary and president of the Société Dentaire de Québec 1948-52 and 1955-56, then as vice-president of l'Association Dentaire de la Province de Québec. He has been a governor of the College of Dental Surgeons of the Province of Quebec since 1954, a member of its executive council since 1960, and is currently its second vice-president.

President Bernier was a member of the CDA's Dental Services Committee between 1957 and 1966. He has represented Quebec on the CDA Board of Governors since 1965 and was elected to the Executive Council in 1968.

Doctor Bernier is a fellow of the Royal College of Dentists of Canada, the International College of Dentists and an honorary member of La Société Dentaire des Cantons de l'Est. The busy dentist is also a consultant in orthodontics to Quebec's Hôtel Dieu Hospital.

Besides being an ardent angler, Doctor Bernier skis, hunts and plays an excellent round of golf. He and his charming wife, Fernande, are the parents of two sons and two daughters–François, Jean, Marie Suzanne and Michèle.

A Newfoundland dentist, David K. Peters of St. John's, was chosen president-elect, defeating L. E. English of Kamloops, B.C. Doctor Peters was president of the Newfoundland Dental Society in 1956-57. Named to the CDA Board of Governors in 1966, he joined the Executive Council in 1970.

*Executive Council*

Newly elected as member of the Executive Council is Ivan Hrabowsky, St. Catharines, Ont.

Continuing as council members are President Louis Bernier, Past President W. J. Spence and President-elect David K. Peters, St. John's, Nfld; also J. E. Abra, Winnipeg, L. E. English, Kamloops, BC, and H. M. Jolley, Toronto.

*Other council chairmen*

Elected as chairmen of other councils were: E. F. Allison, Calgary, Auxiliary Services; K. I. Levinson, Toronto, Communications; Rémy Langlois, Quebec City, Constitution and By-laws; P. E. Currie, London, Dental Services; K. J. Paynter, Saskatoon, Education; R. M. LeBlanc, Montreal, Ethics; R. A. Clappison, Toronto (tentative), Headquarters Property; K. C. Bentley, Montreal (tentative), Hospital Services; D. C. Way, London, Insurance and Investment; M. M. Derrick, Ottawa, Legislation; David K. Peters, St. John's, Nfld, Nominations; C. H. McCormick, Winnipeg (tentative), Public Health and Preventive Dentistry; and L. E. Francis, Montreal, Research.

P. S. Christie, Halifax, was re-elected chairman of the Board of Governors.

oriented programs and their affiliated dental internships and residencies;

– Concurred with the principle of moving Canadian dental student conferences so that they can be held either at CDA headquarters or in cities where there are dental schools – subject to the availability of funds;

– Asked the Council on Education to investigate a possible new contest to replace the War Memorial Essay Competition;

– Approved a new statement on "Survey Policy and Accreditation of a Program in Dental Hygiene." This document reflects courses in non-university as well as university settings, and replaces a former statement on "Minimum Requirements for the Approval of a School of Dental Hygiene;"

– Charged the Council on Education with the additional responsibility of accrediting dental assisting courses which comply with "Minimal Requirements for Educational Programs in Dental Assisting" approved last year;

– Authorized a liaison committee of the Council on Education and the Association of Canadian Faculties of Dentistry, in cooperation with the Royal College of Dentists of Canada, to study the future need for specialists;

– Rejected a proposal that the Association re-apply for a seat on the Canadian Council on Hospital Accreditation;

– Appointed J. W. Neilson, Winnipeg, and M. J. Cripton, Moncton, to the Board of Trustees of the Canadian Fund for Dental Education;

– Asked that the Convention Committee review cost-sharing of clinicians retained for section and general scientific programs at the national convention;

– Instructed the Executive Council to initiate a study of the use of English and French in the proceedings of the Canadian Dental Association;

– Congratulated CDA Archivist Don W. Gullett on the publication of his book, *A History of Dentistry in Canada;*

– Urged corporate members to promote the use of the FDI two-digit system for designation of teeth;

– Voted to open future Board sessions to the news media; and

– Confirmed the following dates of forthcoming CDA national conventions: Montreal, June 1-7, 1972 (revised from Quebec City, June 19-24, 1972); St. John's, Nfld, August 1975; Edmonton, September 27-October 2, 1976.

### Distinguished visitors

Guests and dignitaries from many other national and international organizations graced the national convention by their presence. Distinguished visitors included:

–Doctor Gaston Isabelle, Parliamen-

tary Secretary to the Minister of National Health and Welfare;

–Senator and Mrs. Orville Phillips, Ottawa;

–Doctor and Mrs. J. M. Deines, Seattle, Washington, representing the American Dental Association;

–Doctor and Mrs. Lionel Balding, Hove, Sussex, England, representing the British Dental Association;

–Doctor and Mrs. Harold Hillenbrand, Chicago, and Doctor and Mrs. G. H. Leatherman, London, England, representing the Fédération Dentaire Internationale;

–Doctor and Mrs. A. F. W. Peart, Ottawa, representing the World Medical Association;

–Doctor and Mrs. J. H. B. Hilton and Doctor and Mrs. Jacques Robichon, Ottawa, representing the Royal College of Physicians and Surgeons of Canada;

–Mrs. Sharon French, Ottawa, representing the Canadian Dental Hygienists Association;

–Doctor Cyril de Vere Green of London, England, president of the International College of Dentists;

–Doctor Helen Mussallem, Ottawa, executive director of the Canadian Nurses Association;

–Doctor and Mrs. C. A. Roberts, Ottawa, and Doctor and Mrs. L. O. Bradley, Toronto, representing the Canadian Council on Hospital Accreditation;

–Doctor Lazarus Loeb, Ottawa, representing the Canadian Medical Association;

–Doctor and Mrs. B. L. P. Brosseau, Toronto, representing the Canadian Hospital Association;

–Mrs. Geneva Lewis, Ottawa, representing the Canadian Public Health Association;

–Mrs. Elsie Corey, Calgary, president of the Canadian Dental Nurses and Assistants Association;

–Mr. and Mrs. J. C. Turnbull, Toronto, representing the Canadian Pharmaceutical Association; and

–Mr. M. E. Bower, Toronto, Chairman of the Board of Trustees of the Canadian Fund for Dental Education.

## Doctor Anderson, Doctor Leatherman receive honorary memberships

P. G. Anderson, Toronto, and G. H. Leatherman of London, England, were elected to honorary membership in the CDA.

Doctor Anderson, who regrettably was unable to attend due to illness, is a former president of the Canadian

Executive Director G. H. Leatherman of the Fédération Dentaire Internationale, London, addressed an FDI breakfast meeting on Friday October 1.

Alfred Weinstock, formerly of Montreal, now professor of periodontology at the University of California at Los Angeles, was the first winner of the Canadian Dental Research Foundation Award. He received the prize from Arto Demirjian, Montreal, chairman of the CDRF Award Committee and a member of the CDA Council on Research.

James D. Anderson accepted a certificate of honorary membership for his father, P. G. Anderson, from retiring CDA President W. J. Spence.

Commercial exhibits were well patronized as delegates inspected the latest dental materials and equipment.

perform certain intra-oral procedures which heretofore could only be legally performed by dentists are engaged in public health programs, in private practice and in federally funded pilot projects to determine the efficiency and acceptability of their services. Until the results of these projects can be evaluated, the Board recommended that no further action should be taken to establish guidelines for new types of dental auxiliaries.

The Board also endorsed the conduct of pilot studies to test the effectiveness of alternative systems of delivering high quality dental care and urged that reports from these studies be evaluated by the Council on Dental Services.

## Children's dental plan

In a strongly worded resolution, the Association voted to "approve" the CDA Dental Health Plan for Children as amended to date, and directed that the plan be presented to the Minister of National Health and Welfare.

In a related action on a resolution submitted from the College of Dental Surgeons of Quebec, the Board resolved:

1. That in any further presentations to government, the Association recommend that further controls (on the insurability of dental services), if neces-

Dental Association 1954-55. He has had a long and distinguished career in private practice and dental education.

Doctor Leatherman is executive director of the Fédération Dentaire Internationale, having held this position since 1952.

FDI Executive Director G. H. Leatherman, also the recipient of an honorary membership, presented retiring CDA President W. J. Spence with a gift from the Federation.

## Doctor Weinstock receives research award

Alfred Weinstock, Los Angeles, is the recipient of the 1970-71 Canadian Dental Research Foundation "Research Award."

The award, offered this year for the first time, was presented at the CDA luncheon on Saturday, October 2.

Doctor Weinstock graduated from the University of Toronto Faculty of Dentistry in 1962. He earned a PhD degree at McGill University, Montreal, in 1969. Doctor Weinstock is presently associate professor of periodontology and anatomy in the schools of dentistry and medicine, University of California at Los Angeles.

## New decisions on delivery of dental care

The Board noted that dental assistants and dental hygienists who are taught to

Helen K. Mussallem, executive director of the Canadian Nurses Association, described trends in nursing duties and education to an audience of dental hygienists.

sary, be through the definition of services that are covered, rather than through the institutions where they are provided; and

2. That in any extension of dental benefits under the Canada Medical Care Act, the Association recommend that the extraction of erupted teeth be excluded.

## Board acts on submitted resolutions

Other submitted resolutions dealing with federal-provincial jurisdiction in health care and with the CDA Children's Dental Health Plan were considered by the Board of Governors.

Adopted was the resolution on jurisdiction submitted by the Nova Scotia Dental Association. It says that "the Canadian Dental Association supports the retention by provinces of jurisdiction in health care matters and supports the view that federal involvement be limited to monetary and fiscal policies directed toward the attainment of the four qualifications set out in the Medical Care Act, i.e. universal, comprehensive, portable and publicly administered, and that these be implemented as quickly as possible by eliminating disparities among programs of health care in all provinces and territories and for all persons residing within the boundaries of Canada."

The resolution on the children's plan was submitted by the Association of Canadian Faculties of Dentistry. It says that, "in light of the Wells Committee Report and the concern for dental manpower in the country, the Canadian Dental Association initiate a task force to review its Children's Dental Health Plan and the extent to which the proposals of the Wells Committee would fit into that plan . . . ." The Board referred this resolution to the Council on Dental Services.

A resolution on ethics, submitted by the Newfoundland Dental Association, was referred to the Council on Education. It asks that the Council "recommend to faculties of dentistry that the CDA Code of Ethics be taught to students during their early years in dental school."

The Board also approved a proposal which authorizes the Executive Council to appoint chairmen of councils immediately following the annual meeting of the Board of Governors.

Margery Forgay of the University of Manitoba's School of Dental Hygiene was one of the speakers at a panel discussion about the Wells Committee report on dental auxiliaries. Other panel members were A. M. Hunt, Toronto; B. A. McFarlane, Ottawa; Marjorie Jackson, Toronto; R. A. Connor, Ottawa; Linda Twible, Toronto; and J. F. Reid, Vancouver. The panel was sponsored by the Canadian Dental Hygienists Association.

## Dentists should exercise leadership role, says President Spence

*From the address to the Board of Governors by retiring President W. J. Spence:*

"Your Canadian Dental Association has been, and still is, going through difficult times. There are problems of financing, of priorities and of housing. The services asked for by the membership and by outside agencies are expanding to the bursting point, as far as physical facilities and manpower are concerned. Unless we face up to these problems in a cooperative and practical way, I have grave personal fears for this Association and, therefore, for the continued position of our profession in Canada and in our society. Procrastination and obstruction at this time would, in my opinion, constitute gross irresponsible conduct toward the Association and therefore toward the members whom you and I represent here.

"Please take all of these things into consideration in your discussions and actions during this meeting. Be as definite as you can in your directives. Let us directly confront the Association's problems, cooperate in their solution and take definite steps to arrive at their resolution. This is your Association – yours and mine. Believe me, gentlemen, we need it!

"Finally, as the leaders of Canadian dentistry, I believe that we must act and not wait to react. Further, it is my firm conviction that we must solve our internal Association problems . . . at the earliest possible time – now! This must be done so that our resources and energies may be directed in ever greater effort toward a leadership role in the delivery of dental health services to the Canadian public. We shall not long be allowed to ignore the social implications of our position in today's Canada. We must present to the public an honest image of a farsighted and concerned profession. We must offer solutions to the dental health service problems being faced by certain segments of our country's population. Governments and lay society are concerned. We cannot show this kind of social conscience in a practical way to the public if we are going to expend our energies in parochial thinking and petty wrangling. Therefore let us now proceed to solve our professional problems and hastily get on with these much more important issues that face us as Canadian dentists in these changing times."

## Committee on Association Priorities offers 14 proposals

The CDA's Ad Hoc Committee on Association Priorities submitted 14 recommendations to strengthen the national association's support of the profession.

Its report, submitted to the Executive Council and the Board of Governors, recommended that "responsibilities and services of the national association should be formulated so as to directly support members of the profession. The Association should regard action in the interest of the profession as of prime concern, and thereby make available a better service to the nation."

The five member committee said it favoured the principle of councils dealing with philosophy and ideals. Implementation and administration should be delegated to the Executive Council and headquarters staff.

Appointed last March by the Executive Council, the ad hoc committee was asked to define objectives for the Association, evaluate CDA services, and develop an order of priority for these services. It was assisted in its five month effort by information supplied by two external consultants (Carleton Cowan Public Relations and the Thorne Group Management Consultants) and by headquarters staff.

Singled out for top priority was communication. The report urged a balanced communication package directed internally to the profession, to its auxiliaries and to allied professions, as well as externally to the public, to governments and the media. It also recommended the annual presentation of a brief to the federal government. The content of such briefs should be innovative rather than responsive, it said.

Award winners of the CDA student table clinic competition at the national convention pose with retiring President W. J. Spence and H. M. Thornton, York, Pennsylvania, president of Dentsply International. The winning students are: D. R. Wright, University of Alberta, third prize for clinical application and technique; Ricney Newhouse, University of British Columbia, first prize for clinical application and technique; Doctor Spence; Nancy Earl, University of Alberta, second prize for clinical application and technique; H. M. Thornton; G. E. Accursi, University of Toronto, second prize for basic science and research; and W. P. Baker, Jr., McGill University, first prize for basic science and research. The contest, first of its kind in Canada, was sponsored by the Canadian Fund for Dental Education through a special grant from the L. D. Caulk Company of Canada Ltd and Dentsply Canada Ltd.

The compilation of current facts, surveys and statistics was termed "vitally important." The committee also urged high priority for surveys and accreditation bearing on dental education and hospital services. Elsewhere, its report called for further development of insurance and investment plans which were described as "supplying an important service to Association members."

Council changes advocated in the interest of efficiency and economy included:

– amalgamation of three existing councils (Auxiliary Services, Dental Services, Public Health and Preventive Dentistry) to form a single new council on dental health (the Board of Governors deferred action on this proposal); and

– making the Communications Council responsible to the Executive Council (the Board rejected this proposal).

The committee supported the management consultants' proposals for strengthening the headquarters staff. These called for the appointment of a director of administration and a director of communications, the addition of a public information officer and a news editor for the Journal, and conversion of Journal and the convention advertising to a staff function. Noting that necessary staff acquisition is restricted by budget limitations, the committee urged gradual expansion as an interim measure.

The report also concurred with a proposed transfer of the Association's headquarters to Ottawa and recommended the erection of a headquarters building in the national capital.

Members of the ad hoc committee were: Henri Brouillet, Montreal; W. C. Deacon, Ottawa; Hubert LaBelle, Montreal; W. P. Munsie, Vancouver; and H. R MacLean, chairman, Edmonton.

There were plenty of opportunities for informal east-west discussions between the sessions of the Board of Governors. Identifiable in this picture are G. M. W. Hewitt of Gander, Nfld; E. F. Allison and J. C. Waddell of Calgary; F. L. Pierce of Swift Current, Sask; and J. E. L. Mathieson, Edmonton, president of the Alberta Dental Association.

## Board okays acquisition of Ottawa property

The Board of Governors endorsed a recommendation to acquire a site for a new headquarters building for the Association in the nation's capital.

The proposed site is on Alta Vista Drive in east central Ottawa, adjacent to the headquarters of the Canadian Medical Association. The 1.08 acre property has been offered the CDA by the National Capital Commission at an approximate price of $74,000.

The Board authorized acquisition of the site and instructed the Executive Council to develop building and financing plans for presentation at the 1972 annual meeting in Montreal.

## Trim programs to cut costs

Treasurer J. B. Taylor presented to the Executive Council balanced estimates for 1972 showing income of $458,700, expense of $458,900 and an excess of expense over income of $200.

To do so, the treasurer recommended a reduction of $92,000 in the original expenditure estimates of $550,900.

The Board of Governors, while endorsing the principle of balanced budgets, reinstated certain items in support of public relations and communications. As a result, the budget adopted for 1972 shows expense of $471,200 and an excess of expense over income of $12,500.

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Walter J. Johnson, Inc, of New York City are agents for remaining original single issues of Volumes 1-28 (1935-62) of the Journal. Requests for single issues in this series should be directed to Walter J. Johnson, Inc, 111 Fifth Avenue, New York, NY 10003, USA.

Original single issues of Volumes 29-37 (1963-71) of the Journal may be purchased from the Canadian Dental Association, 234 St. George Street, Toronto 180, Ont.

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Quelques membres québécois de l'ADC qui ont assisté à la réunion du Bureau des Gouverneurs. On remarque Marcel Hébert, Hubert LaBelle, Marcel Archambault et Herbert Caplan, tous de Montréal.

# Décision de l'ADC sur les dentifrices, les produits et appareils dentaires; le groupement des specialités est différé

L'Association a pris les premières dispositions afin d'instaurer un programme de stipulations canadiennes pour les produits et les appareils dentaires, et a décidé d'informer les dentistes au sujet des dentifrices qui possèdent un avantage thérapeutique prouvé et qui pourraient être recommandés aux patients comme faisant partie de leur programme de prévention de la carie. Ce n'était qu'une des décisions prise par les délégués au congrès national qui a eu lieu à Ottawa du 27 septembre au 2 octobre.

L'ADC a également différé le groupement des spécialités dentaires en quatre parties, soit la pédodontie, l'hygiène dentaire publique, la dentisterie restauratrice ainsi que la médecine et chirurgie buccale.

*Produits et appareils dentaires*

L'année dernière le Conseil des recherches avait créé un Comité des standards et des produits et appareils dentaires. Cette année le Bureau des Gouverneurs a approuvé le mandat du nouveau comité. Le mandat autorise le comité à développer des spécifications canadiennes (en liaison avec les Associations canadiennes et internationales des standards) et d'avancer un programme d'analyse, d'évaluation et de brevet au Canada.

Le comité aura un rôle consultatif et sera chargé d'établir des principes qui guideront la publicité et l'exposition des produits et des appareils dentaires.

*Les spécialités*

La question des spécialités a généré un des meilleurs débats jamais vu à une assemblée du Bureau des Gouverneurs. Ceux qui étaient en faveur du principe du groupement prétendaient que cette mesure était nécessaire afin de limiter la prolifération absolue des spécialités. Les adversaires ont riposté en déclarant que le groupement fausse le problème mais ne l'élimine pas. Ils ont argumenté vigoureusement contre les alignements tels qu'ils étaient proposés. Tout cela a finalement donné lieu à un compromis. Les gouverneurs ont ordonné une étude plus approfondie du principe du groupement mais ont substitué également des critères plus sévères pour la reconnaissance des limites d'une spécialité. Ceux-ci stipulent que:

1. Le champs d'action d'une spécialité aura besoin de dentistes spécialement formés pour remplir les responsabilités de la profession afin de promouvoir et d'améliorer la santé et le bien-être de la population.

2. Le champs d'action d'une spécialité doit représenter un champs de pratique important qui nécessite une connaissance spéciale des sciences de base et en clinique et des talents qui demandent un enseignement et une expérience en clinique et en laboratoire au-dessus de la formation universitaire normale afin de rendre des services qui sont d'une nature rare ou difficile.

3. Le champs d'action d'une spécialité doit démontrer qu'il existe des institutions d'enseignement ou des hôpitaux enseignants qui ont développé un nombre suffisant de cours de sorte qu'il existe des moyens d'obtenir une formation avancée et de l'expérience pour ceux qui recherchent un programme d'enseignement dans ce domaine spécialisé. Le champs de pratique ne doit pas être homologue avec un département universitaire d'une faculté dentaire puisque ces départements sont organisés de façon à présenter la matière enseignée et non pour définir une division de la pratique.

4. Le champs d'action d'une spécialité doit démontrer qu'il existe un besoin public et professionnel pour ces services spécialisés qui attirera un nombre raisonnable de praticiens dont le savoir et le talent sont facilement disponibles.

5. Le champs d'action d'une spécialité devra procurer un service de santé spécial pour lequel le dentiste pourra adresser un patient ou demander une consultation.

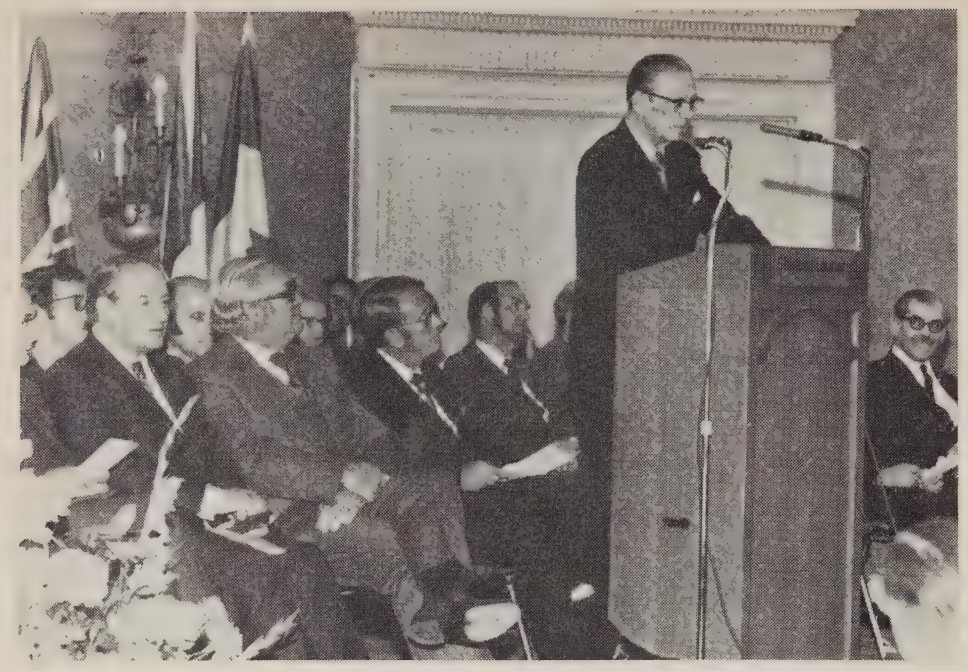
6. Le champs d'action d'une spécialité devra démontrer qu'un nombre considérable de communications importantes et de cliniques ont été présentées ou qu'un nombre croissant de communications scientifiques d'un haut calibre ou des cliniques sont en voie d'être présentées.

*Les dentifrices thérapeutiques*

L'Association a toujours maintenu une politique de désengagement en ce qui concerne la reconnaissance des produits commerciaux et la décision que les Gouverneurs ont pris quant aux dentifrices thérapeutiques représente donc une nouvelle tendance. L'ADC a décidé d'identifier les dentifrices efficaces de sorte qu'un dentiste puisse les recommander à ses patients. Cette identification sera basée sur les rapports officiels du Conseil de la thérapeutique dentaire de l'Association Dentaire Américaine et sur l'affirmation écrite du fabricant que les dentifrices qui sont vendus sur le marché canadien sous la même marque qu'aux Etats-Unis possèdent une formule identique. Jusqu'ici, il n'y a que deux marques anti-caries au fluor qui ont été "acceptées" par l'ADA – *Crest*

Le Bureau des Gouverneurs de l'ADC s'est réuni pendant les trois jours précédant le congrès national. Les délégués ont considéré plus que 40 rapports et résolutions, ainsi que 14 recommandations au sujet des services rendus par l'Association. Le Dr Jean-Paul Lussier, (à gauche) de Montréal, a participé à un des quatre comités de référence qui ont aidé le Bureau au cours de ses délibérations.

Les délégués ont défini les nouvelles lignes de conduite régissant les spécialités et l'assurance-maladie, au cours des réunions des quatre comités de référence du Bureau des Gouverneurs.



Le Docteur Harold Hillenbrand, président de la Fédération Dentaire Internationale, a pris la parole à la cérémonie d'ouverture du congrès national mercredi, le 29 septembre. Le 15e Congrès dentaire mondial de la Fédération Dentaire International se tiendra à Mexico du 22 au 27 octobre 1972.

de Procter & Gamble et *Colgate avec MFP* de Colgate-Palmolive.

## Nouvelles recommandations en faveur d'un programme de retraite et de placement

L'Association a adopté une résolution recommandant d'élargir le Régime d'épargne-retraite de l'ADC en ajoutant un compte à intérêts dans un régime enregistré et un régime d'actions ordinaires dans un programme non enregistré. Tous les régimes seraient administrés par la Compagnie Royal Trust.

D'autre part, le Bureau des Gouverneurs a félicité le Conseil des assurances d'avoir inauguré un régime de revenu supplémentaire (Ajustement Immédiat en Dollars, ou AID en abréviation). Ce programme – qui est le prolongement du régime d'assurance-vie de l'ADC – aide la famille du dentiste participant durant le règlement de sa succession.

Le Bureau a aussi recommandé que le Conseil poursuive des négociations avec l'Association Dentaire de l'Ontario afin d'accroître la disponibilité de l'assurance sur le contenu du cabinet dentaire à tous les membres de l'ADC.

## Règlements amendés pour permettre la cotisation conjointe

L'ADC a amendé ses règlements afin de permettre le principe de l'appartenance volontaire, individuelle et conjointe qui avait été approuvé l'année dernière. Le Bureau avait adopté ce principe parce que les frais de licence et les cotisations aux associations – qui sont maintenant perçus ensemble–pourraient être divisés dans plusieurs provinces.

Ce nouvel amendement, qui constitue un paragraphe supplémentaire ajouté à l'Article II, Section 1 des règlements déclare: "Si un organisme provincial établi de réglementation professionnelle décide de cesser de procurer des fonds aux autres corporations dentaires établies, au niveau provincial ou national, cet organisme établi de réglementation professionnelle peut recommander, avec l'approbation du Bureau des Gouverneurs de l'Association, qu'une autre corporation dentaire provinciale établie, dont les membres sont des dentistes qui veulent appartenir volontairement et conjointement et deviennent membres de l'organisme corporatif provincial et de l'Association, devienne le membre corporatif dans cette province.

L'appartenance, soit à l'Association, soit à l'organisme corporatif provincial dépendra donc de l'appartenance à l'autre".

Les anciens présidents de l'ADC ont tenu leur réunion annuelle au petit déjeuner jeudi le 30 septembre. On voit sur cette photo, de gauche: G. M. Dewis, P. S. Christie, W. G. McIntosh, H. R. MacLean, H. W. Reid, Rémy Langlois, J. P. Coupland, M. V. J. Keenan et William Miller.

## Invités d'honneur

Plusieurs visiteurs et invités d'honneur représentant des organismes nationaux et internationaux ont honoré le congrès de leur présence. On notait:

–Le Dr Gaston Isabelle, Secrétaire parlementaire au Ministère de la Santé national et du Bien-être;

–Le Sénateur et Mme Orville Phillips, d'Ottawa;

–Le Dr et Mme J.M. Deines, de Seattle, Washington, représentant l'Association Dentaire Américaine;

–Le Dr et Mme Lionel Balding, de Hove, Sussex, Angleterre, représentant l'Association Dentaire Britannique;

–Le Dr et Mme Harold Hillenbrand, de Chicago, et le Dr et Mme G.H. Leatherman, de Londres, Angleterre, représentant la Fédération Dentaire Internationale;

–Le Dr et Mme A.F.W. Peart, d'Ottawa, représentant l'Association Médicale Mondiale;

–le Dr et Mme J.H.B. Hilton et le Dr et Mme Jacques Robichon, d'Ottawa, représentant le Collège Royal des Médecins et Chirurgiens du Canada;

–Mme Sharon French, d'Ottawa, représentant l'Association des Hygiénistes Dentaires Canadiennes;

–Le Dr Cyril de Vere Green de Londres, Angleterre, président du Collège International des Chirurgiens-Dentistes;

–Le Dr Helen Mussallem, d'Ottawa, directrice générale de l'Association des infirmières canadiennes;

–Le Dr et Mme C.A. Roberts, d'Ottawa, et le Dr et Mme L.O. Bradley, de Toronto, représentant le Conseil canadien d'accréditation des hôpitaux;

–Le Dr Lazarus Loeb, d'Ottawa, représentant l'Association Médicale Canadienne;

–Le Dr et Mme B.L.P. Brosseau, de Toronto, représentant l'Association canadienne des hôpitaux;

–Mme Geneva Lewis, représentant l'Association canadienne de l'hygiène publique;

–Mme Elsie Corey, de Calgary, présidente de l'Association des infirmières et des assistantes dentaires canadiennes;

–M. et Mme J.C. Turnbull, de Toronto, représentant l'Association pharmaceutique canadienne; et

–M. M.E. Bower, de Toronto, directeur du Bureau des fiduciaires du Fonds canadien pour l'enseignement dentaire.

## Les Drs Anderson et Leatherman deviennent membres honoraires

P.G. Anderson, de Toronto, et G.H. Leatherman, de Londres, Angleterre, ont été élus membres honoraires de l'ADC.

Le Dr Anderson, qui n'a malheureusement pu assister à la cérémonie pour cause de maladie, a occupé le poste de président de l'Association Dentaire

Louis Bernier

David K. Peters

## LE DR BERNIER DEVIENT PRÉSIDENT
## LE DR PETERS EST CHOISI PRÉSIDENT DÉSIGNÉ

Le Dr Louis Bernier, de Québec, a été investi en tant que 52ème président de l'ADC. Il succède au Dr W. J. Spence, de Toronto.

Le nouveau président, tout comme son prédécesseur, est aussi orthodontiste. Eduqué à Québec, Ottawa et Montréal, il obtint son baccalauréat ès arts en 1942 à l'Université d'Ottawa et son doctorat en chirurgie dentaire de l'Université de Montréal en 1946. Il reçut un diplôme en orthodontie l'année suivante de l'Université de Montréal et devint membre du Collège Royal des Chirurgiens-Dentistes du Canada en 1966.

Le Dr Bernier a servi la profession dans plusieurs postes – d'abord comme secrétaire et président de la Société Dentaire de Québec 1948-52 et 1955-56, puis en qualité de vice-président de l'Association Dentaire de la Province de Québec. Il est gouverneur du Collège des Chirurgiens-Dentistes de la Province de Québec depuis 1954 et fait partie de son conseil exécutif depuis 1960.

Le président Bernier a été membre du Comité des services dentaires de l'ADC entre 1957 et 1966. Il représente le Québec au Bureau des Gouverneurs de l'ADC depuis 1965 et a été élu au Conseil Exécutif en 1968.

Le Dr Bernier est membre du Collège Royal des Chirurgiens-Dentistes du Canada, membre du Collège International des Chirurgiens-Dentistes et membre honoraire de la Société Dentaire des Cantons de l'Est. Il est également dentiste consultant en orthodontie à l'Hôpital Hôtel Dieu de Québec.

A part la pêche à la ligne, le Dr Bernier joue aussi une excellente partie de golf. Son épouse, Fernande, et lui sont les parents de deux fils et deux filles – François, Jean, Marie Suzanne et Michèle.

Un dentiste de Terre-Neuve, David K. Peters, de St-Jean, a été choisi au poste de président désigné, battant ainsi L.E. English de Kamloops, CB. Le Dr Peters a été président de la Société dentaire de Terre-Neuve en 1956-57. Nommé au Bureau des Gouverneurs de l'ADC en 1966, il fait partie du Conseil Exécutif depuis 1970.

*Le Conseil Exécutif*

Le membre nouvellement élu au Conseil Exécutif est Ivan Hrabowsky, de St. Catharines, Ont.

Font aussi partie du Conseil: le président Louis Bernier, le président sortant W.J. Spence et le président désigné David K. Peters, de St-Jean, Terre-Neuve; également J.E. Abra, de Winnipeg; L.E. English, de Kamloops, CB; et H.M. Jolley, de Toronto.

*Les présidents des conseils*

Ont été élus présidents des conseils: E.F. Allison, Calgary, Services auxiliaires; K.I. Levinson, Toronto, Communications; Rémy Langlois, Québec, Constitution et règlements; P.E. Currie, London, Services dentaires; K.J. Paynter, Saskatoon, Enseignement; R.M. LeBlanc, Montréal, Ethique professionnelle; R.A. Clappison, Toronto, (pressenti) Immeuble du secrétariat; K.C. Bentley, Montréal, (pressenti) Services hospitaliers; D.W. Way, London, Assurances et placements; M.M. Derrick, Ottawa, Législation; David K. Peters, St-Jean, Terre-Neuve, Nominations; C.H. McCormick, Winnipeg, (pressenti) Hygiène dentaire publique et dentisterie préventive; et L.E. Francis, Montréal, Recherche.

P.S. Christie, de Halifax, a été réélu président d'assemblée du Bureau des Gouverneurs.

Le président sortant W. J. Spence félicite Louis Bernier après son installation au poste de président de l'Association Dentaire Canadienne.

Canadienne en 1954-55. Il a derrière lui une longue et brillante carrière en pratique privée et dans l'enseignement dentaire.

Le Dr Leatherman est, quant à lui, directeur général de la Fédération Dentaire Internationale. Il occupe ce poste depuis 1952.

## Le Dr Weinstock reçoit le prix de la recherche

Alfred Weinstock, de Los Angeles, est le récipiendaire du "Prix de la recherche" accordé par la Fondation canadienne de recherche dentaire pour l'année 1970-71.

Une des tables cliniques qui ont été très populaires et qui ont attiré une grande foule.

Cette récompense, attribuée pour la première fois cette année, lui a été offerte lors du banquet de l'ADC, le samedi 2 octobre.

Le Dr Weinstock a obtenu son diplôme de la faculté dentaire de l'Université de Toronto en 1962. Il reçut son PhD à l'Université McGill de Montréal en 1969. En ce moment le Dr Weinstock est professeur adjoint de périodontologie et d'anatomie aux facultés dentaire et de médecine de l'Université de Californie à Los Angeles.

Une petite section de l'étalage considérable d'exposés commerciaux.

## Le Congrès adopte de nouvelles résolutions sur la déontologie, la fluoration et l'enseignement

*Déontologie*

Le Code d'éthique a été renforcé par l'addition d'une section sur "Les obligations en présence d'un tiers". La nouvelle section 25 déclare:

1. Le paiement des honoraires par des systèmes d'assurance publics ou privés ou par une agence du bien-être social ne doit pas amener le dentiste à dévier de ses obligations professionnelles envers le patient.

2. Un dentiste ne doit pas augmenter ses honoraires uniquement parce qu'il sait que le remboursement se fera par l'entremise d'un tiers.

3. Il est répréhensible pour le dentiste de commettre une irrégularité intentionelle en facturant une tierce personne qui fera le remboursement.

Une série de commentaires qui servent d'explication au Code ont aussi été approuvés. Le commentaire sur la Section 8, qui traite du droit de refuser de soigner quelqu'un déclare que "le dentiste doit soigner un patient consciencieusement sans regarder à la nationalité, la race, la croyance ou la couleur." Un autre commentaire attaché à la Section 14 déclare qu'un dentiste qui s'identifie ou par titre ou par son diplôme dans le matériel publicitaire des produits d'un fournisseur de matériaux dentaires commet une infraction du code d'éthique.

*La fluoration*

Dans un langage énergique, l'ADC a répété son appui vigoureux à la fluoration de l'eau. La résolution déclare: ". . . l'ADC recommande que, si possible, le contenu en fluorure de l'eau potable d'une municipalité soit ajusté au niveau optimal pour obtenir le maximum de prévention contre la carie dentaire, comme mesure sanitaire éprouvée, et qu'à cet effet on demande conseil aux experts dentaires, médicaux et techniques". La résolution continue ensuite ainsi: ". . . lorsque la fluoration d'une municipalité n'est pas possible, des méthodes individuelles de fournir du fluorore pour la protection de la sante dentaire devraient être considérées".

De la gaieté à la Soirée du Président

Un étudiant explique sa table clinique au Dr Louis Bernier, président de l'ADC, au président du congrès, le Dr J. D. Purves et au Dr H. R. MacLean. Les trois dentistes ont jugé la compétition organisée par l'ADC pour les tables cliniques données par les étudiants. La compétition a été commanditée par le Fonds canadien pour l'enseignement dentaire par moyen d'un octroi spécial accordé par la Compagnie L. D. Caulk Limitée et Dentsply Canada Limitée.

–A encouragé les membres corporatifs à promouvoir l'utilisation du système de la FDI à deux chiffres pour la désignation des dents;

–A voté qu'à l'avenir les délibérations du Bureau seraient ouvertes aux média d'information; et

–A confirmé les dates suivantes pour les prochains congrès nationaux de l'ADC: Montréal, du 1er au 7 juin 1972 (et non pas Québec, du 18 au 24 juin 1972); St-Jean, Terre-Neuve, août 1975; Edmonton, du 27 septembre au 2 octobre 1976.

## Distribution des soins dentaires

Le Bureau des Gouverneurs a constaté que des assistantes dentaires et des hygiénistes dentaires qui ont été formées pour accomplir certains traitements dans la bouche qui, jusqu'ici, pouvaient seulement être rendus légalement par un dentiste, sont employées dans des programmes d'hygiène publique, en pratique privée et dans des

*L'enseignement*

En ce qui concerne d'autres mesures, l'Association:

–A souscrit à la reconnaissance des cours dentaires universitaires et d'hygiène dentaire à l'Université Dalhousie, à Halifax, tel que recommandé par le Conseil de l'enseignement;

–A autorisé le Conseil de l'enseignement de continuer à reconnaître les postes d'internes et de résidents qui font partie des programmes réguliers d'enseignement universitaire et post-universitaire;

– A autorisé le Conseil de l'enseignement à reconnaître d'autres postes d'internes et de résidents dentaires qui accordent des crédits en vue d'un diplôme universitaire dans une spécialité reconnue par l'ADC;

–A autorisé le Conseil des services hospitaliers à approuver d'autres programmes et leurs postes d'internes et de résidents dentaires affiliés;

–A été d'accord avec le principe de changer l'endroit des conférences des étudiants dentaires canadiens de sorte qu'elles puissent avoir lieu au Secrétariat de l'ADC ou dans des villes où sont situées les facultés dentaires – si les fonds sont disponibles;

– A demandé au Conseil de l'enseignement d'étudier la possibilité d'établir un nouveau concours qui remplacerait le Concours du Mémorial de Guerre;

–A approuvé une nouvelle déclaration officielle sur la "Politique d'étude et de reconnaissance d'un programme en hygiène dentaire". Ce document concerne les cours donnés dans des centres universitaires et non-universitaires, et remplace l'ancienne déclaration officielle intitulée "Prérequis minima pour la reconnaissance d'une école d'hygiène dentaire";

–A donné au Conseil de l'enseignement la responsabilité supplémentaire de reconnaître les cours d'assistante dentaire qui se conforment aux "Prérequis minima des programmes d'enseignement pour assistantes dentaires" qui avaient été approuvés l'année dernière;

–A autorisé le Comité de liaison du Conseil de l'enseignement et de l'association des facultés dentaires du Canada, en coopération avec le Collège Royal des Chirurgiens-Dentistes du Canada à étudier les besoins en spécialistes à l'avenir;

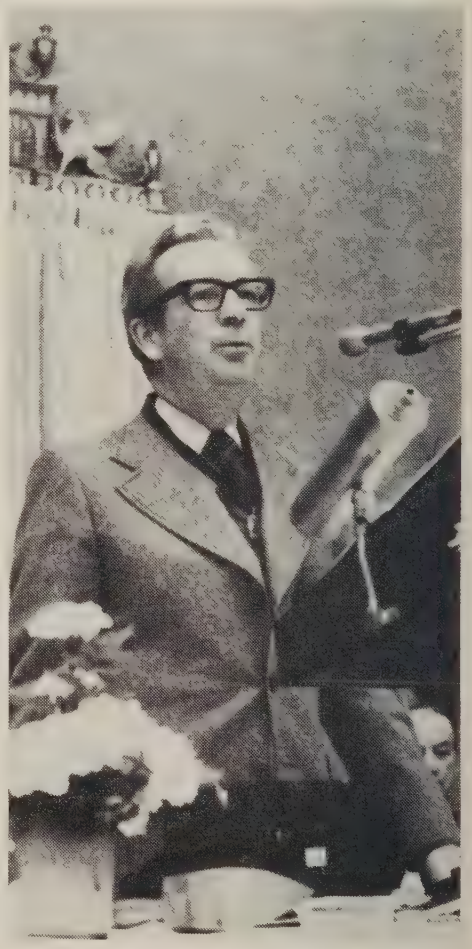
–A rejeté une proposition demandant à l'Association de redemander un siège au Conseil canadien sur la reconnaissance des hôpitaux;

–A nommé J.W. Neilson, de Winnipeg, et M.J. Cripton, de Moncton, au Conseil d'administration du Fonds canadien pour l'enseignement dentaire;

–A demandé au Comité des congrès de reviser le principe du partage des frais des conférenciers invités au programme scientifique général et celui des sections durant le congrès national;

–A chargé le Conseil Exécutif d'amorcer une étude de l'utilisation de la langue anglaise et française durant les délibérations de l'Association Dentaire Canadienne;

–A félicité l'archiviste de l'ADC, le Dr Don W. Gullett, d'avoir publié un livre intitulé *A History of Dentistry in Canada;*



Le président Bernier prononce son discours d'inauguration.

Le Conseil Exécutif s'est réuni les 23, 24, 25 et 30 septembre et le 1er octobre. On voit sur cette photo (de gauche à droite) les Docteurs J. B. Taylor, trésorier de l'ADC; H. R. MacLean; J. E. Abra; L. E. English; David K. Peters, président désigné; Ivan Hrabowsky; W. J. Spence; président sortant; et W. G. McIntosh, directeur général de l'ADC.

projets pilotes sous l'égide du gouvernement fédéral afin de déterminer l'efficacité et la réception de ces services. Le Bureau a jugé bon de ne prendre aucune décision au sujet du contrôle de ce nouveau genre d'auxiliaire dentaire jusqu'à ce que les résultats de ces projets soient évalués.

Le Bureau a également souscrit à la formation d'études pilotes qui vérifieront l'efficacité de divers systèmes de distribution de soins dentaires de haute qualité, et a recommandé que les rapports de ces études soient évalués par le Conseil des services dentaires.

## Régime de soins dentaires pour enfants

L'Association a "approuvé" le Régime de soins dentaires pour enfants de l'ADC tel qu'amendé à date, et a donné des instructions pour que le régime soit présenté au Ministre de la Santé nationale et du Bien-être.

Dans une résolution connexe soumise par le Collège des Chirurgiens-Dentistes de la Province de Québec, le Bureau a décidé que:

1. A l'avenir, toute représentation faite par l'Association auprès du gouvernement, recommande que des contrôles supplémentaires (des services dentaires couverts par l'assurance-maladie) soient incorporés par l'entremise de définitions des services inclus, plutôt que par la restriction des endroits dans lesquels ces services sont rendus; et

2. Que l'Association recommande que l'extraction des dents ayant déjà fait éruption soit exclue de tout élargissement des bénéfices dentaires compris dans la Loi de l'Assurance-maladie du Canada.

## Le Comité sur les priorités de l'Association soumet 14 propositions

Le Comité spécial de l'ADC sur les priorités de l'Association a soumis 14 recommandations qui seraient susceptibles de rendre plus efficaces les services que l'association nationale offre à la profession.

Ce rapport, qui a été soumis au Conseil exécutif et au Bureau des Gouverneurs, recommande que "les responsabilités et les services de l'association nationale soient formulés de telle sorte qu'ils puissent aider directement la profession. L'Association devrait considérer son champs d'action dans l'intérêt des membres de la profession comme primordial, et de ce fait pourrait rendre possible de meilleurs services qui bénéficieront tous les Canadiens".

Le comité composé de cinq membres a déclaré qu'il prônait le principe qui verrait les conseils traiter de principes de philosophie et d'idéaux. Quant aux domaines de l'exécution et de l'administration, ils devraient relever du Conseil exécutif et du personnel du secrétariat.

Nommé en mars dernier par le Conseil exécutif, ce comité spécial a eu pour tâche de définir les objectifs de l'Association, d'évaluer les services de l'ADC, et de mettre au point un programme de priorités pour ces services. Il reçut l'aide, pendant ces cinq mois d'efforts, de deux agences extérieures d'experts conseils (Carleton Cowan Public Relations et le Thorne Group Management Consultants) ainsi que du personnel du secrétariat.

En tête de liste des priorités se situent les communications. Le rapport insiste sur l'urgence d'une communication équilibrée, d'une part dirigée vers l'intérieur de la profession, aux auxiliaires et aux professions connexes; d'autre part dirigée vers le public, les gouvernements et les médias d'information. Le rapport recommande aussi la présentation annuelle d'un mémoire adressé au gouvernement fédéral. Le contenu de ces mémoires devrait être innovateur plutôt

que d'être une simple réplique au gouvernement.

On désigna la compilation de faits courants, les enquêtes et les statistiques comme ayant une "importance vitale". Le comité insista aussi par ailleurs sur la priorité à accorder aux enquêtes et à la reconnaissance portant sur l'enseignement dentaire et les services hospitaliers. Ailleurs le rapport fait ressortir le besoin de l'amplification accrue des régimes d'assurances et d'investissements qui sont décrits comme "rendant un service considérable aux membres de l'Association".

Les changements au sein des conseils, invoqués dans un but d'efficacité et d'économie comprennent:

—la fusion de trois conseils actuels (Services auxiliaires, Services dentaires, Santé publique et dentisterie préventive), en un seul conseil de la santé dentaire (le Bureau des Gouverneurs a ajourné toute décision sur cette proposition); et

—le fait que le Conseil des communications soit responsable devant le Conseil exécutif (le Bureau a rejeté cette proposition).

Le comité appuya les propositions faites par les experts conseils en ce qui concerne le renforcement du personnel du secrétariat. Ceux-ci avaient recommandé la nomination d'un directeur de l'administration et d'un directeur des communications, l'addition d'un responsable de l'information publique et d'un rédacteur des nouvelles pour le Journal; la publicité du Journal et du congrès devrait faire partie des fonctions du personnel. En faisant remarquer que l'emploi d'un personnel supplémentaire était nécessairement lié à des limitations de budget, le comité insista sur la nécessité d'un développement graduel comme mesure intérimaire.

Le rapport en arrive aussi à la conclusion d'un déménagement du secrétariat de l'Association à Ottawa et recommande l'érection d'un nouvel édifice dans la capitale nationale.

Parmi les membres du Comité spécial on retrouve: Henri Brouillet, de Montréal; W. C. Deacon, d'Ottawa; Hubert LaBelle, de Montréal; W. F. Munsie, de Vancouver; et H. R. MacLean, responsable du comité, d'Edmonton.

## Les dentistes devraient jouer un rôle de "leadership" déclare le Président Spence

*Tiré du discours du Président sortant W. J. Spence devant le Bureau des Gouverneurs:*

"Votre Association Dentaire Canadienne a passé, et passe encore, des moments difficiles. Il existe des problèmes de financement, de priorités et de logement. Les services qu'attendent de nous les membres de la profession et les agences extérieures atteignent le point critique où les possibilités physiques et la main-d'oeuvre même sont en jeu. A moins que nous n'envisagions ces problèmes d'une façon réaliste et en pleine collaboration, j'éprouve personnellement des craintes très sérieuses sur l'avenir de l'Association, et par conséquent sur l'avenir même de notre profession au Canada et à l'intérieur de notre société. A l'heure qu'il est, l'inaction et l'obstruction révèleraient selon moi une attitude foncièrement irresponsable envers l'Association et donc envers les membres que vous et moi représentons ici.

"Ayez l'obligeance de considérer tous ces problèmes lors de vos discussions et des résolutions que vous prendrez au cours de cette assemblée. Soyez aussi clairs que possible dans vos directives. Envisageons les problèmes de l'Association en face, coopérons dans la recherche d'une solution, et prenons des mesures fermes pour atteindre cette solution. C'est votre association, la vôtre et la mienne, et croyez-moi, messieurs, nous en avons besoin!

"En dernier lieu, en tant que responsables de la dentisterie canadienne, je pense que nous devons agir, et non attendre pour réagir. De plus, et c'est là une conviction personnelle, je crois que nous devons résoudre les problèmes internes de cette association, et ce le plus tôt possible – maintenant! Et ceci doit être fait de telle sorte que nos ressources et nos énergies soient canalisées en un effort collectif plus grand, vers un rôle de leadership dans l'administration des services de santé dentaire pour le public canadien. Nous ne pourrons plus nous permettre d'ignorer les implications sociales de notre profession dans le Canada d'aujourd'hui. Nous devons présenter au public une image juste et honnête d'une profession qui se sent impliquée. Nous devons apporter des solutions aux problèmes de services de santé dentaire qui ne sont pas toujours accessibles à une certaine partie de la population de ce pays. Les gouvernements et la société sont directement concernés dans cette affaire. Il est sûr par ailleurs que cette conscience sociale ne peut se refléter dans le public si nous perdons notre temps et nos énergies à manifester un esprit de clocher et à nous chamailler pour des peccadilles.

"Donc, dès à présent, commençons à résoudre nos problèmes professionnels, et regardons en face les véritables échéances qui nous attendent, nous dentistes canadiens dans ces temps qui changent".

## Décisions du Bureau sur certaines résolutions

Des résolutions traitant de juridiction fédérale-provinciale en matière de santé et celle traitant du Régime de santé dentaire pour enfants de l'ADC ont été étudiées par le Bureau des Gouverneurs.

La résolution soumise par l'Association dentaire de la Nouvelle-Ecosse sur le problème de juridiction a été adoptée. Elle se lit comme suit: "L'Association Dentaire Canadienne donne son appui aux provinces pour qu'elles maintiennent leurs juridictions dans le domaine des soins de santé et insiste pour que l'implication du gouvernement fédéral se limite aux politiques fiscales et monétaires dans le but d'atteindre les quatre objectifs fixés dans la Loi de l'assurance-maladie, à savoir l'universalité, la portée, la portabilité et l'administration publique; et pour que le système soit mis en place le plus rapidement possible en éliminant les disparités entre les divers programmes de santé offerts dans toutes les provinces et territoires pour toute personne résidant à l'intérieur des frontières du Canada".

La résolution sur le régime pour enfants a été soumise par l'Association des facultés dentaires canadiennes. Elle stipule que, "à la lumière du Rapport du Comité Wells et en considérant la main-d'oeuvre dentaire au pays, l'Association Dentaire Canadienne élabore un programme de révision de son Régime de santé dentaire pour les enfants et examine dans quelle mesure les propositions du Comité Wells entrent dans ce régime." Le Bureau a renvoyé cette résolution au Conseil des services dentaire.

Une résolution sur l'éthique professionnelle qui avait été soumise par l'Association dentaire de Terre-Neuve a été envoyée au Conseil de l'enseignement. L'ADTN avait demandé au Conseil de recommander aux facultés dentaires d'enseigner le Code d'éthique professionnelle de l'ADC aux étudiants pendant les premières années de leur éducation universitaire.

Le Bureau a aussi approuvé une proposition qui autorise le Conseil Exécutif à nommer les responsables de conseils immédiatement après l'assemblée annuelle du Bureau des Gouverneurs.

Les gagnants du prix de la compétition des tables cliniques données par les étudiants au congrès national posent avec le président sortant W. J. Spence et H. M. Thornton, York, Pennsylvanie, président de Dentsply International. Les étudiants gagnants sont: D. R. Wright, Université de l'Alberta, troisième prix pour les techniques et application en clinique; Ricney Newhouse, Université de la Colombie Britannique, premier prix pour les techniques et application en clinique; le Dr Spence; Nancy Earl, Université de l'Alberta, deuxième prix pour la documentation scientifique et recherche; H. M. Thornton; G. E. Accursi, Université de Toronto, deuxième prix pour la documentation scientifique et recherche; et W. P. Baker, Université McGill, premier prix pour la documentation scientifique et recherche. La récompense, attribuée pour la première fois cette année, leur a été offerte par le Fonds canadien pour l'enseignement dentaire par moyen d'un octroi spécial de la Compagnie L. D. Caulk Limitée et Dentsply Canada Limitée.


**L'Association Dentaire Canadienne**

*sollicite des demandes pour le poste de*

## REDACTEUR-ADJOINT

L'Association Dentaire Canadienne sollicite les services d'un dentiste ayant une connaissance parfaite de la langue française et une connaissance pratique de l'anglais.

**Poste:** Rédacteur adjoint.

**Responsabilités:**

1. Le candidat travaillera de concert avec le rédacteur et sera responsable de la préparation et de la correction des textes français publiés dans le Journal de l'Association.
2. Rédiger les éditoriaux en langue française. Traduire les textes techniques et les bulletins de nouvelles. Contrôler les textes scientifiques.
3. Couvrir les principales réunions dentaires de la Province de Québec et d'autres événements de caractère national, qui pourront lui être énumérés.

Les candidats doivent fournir un "curriculum vitae" ainsi qu'un résumé de leurs qualifications et faire parvenir leur demande par écrit au:

Comité de Sélection du Conseil Exécutif de l'ADC
a/s Dr Louis Bernier
1575 Chemin St-Louis,
Sillery, Québec 6, Qué.

La rémunération sera à discuter.

Pour tout renseignement additionel, bien vouloir communiquer avec le Docteur Louis Bernier.


### Le Bureau approuve l'achat d'un terrain à Ottawa

Le Bureau des Gouverneurs a approuvé une recommandation qui suggérait que l'Association devrait construire un nouvel immeuble pour son secrétariat dans la capital nationale.

Le terrain qui a été proposé est situé sur Alta Vista Drive dans la partie est du centre de la ville d'Ottawa et est contigu au secrétariat de l'Association Médicale Canadienne. La propriété mesure 1.08 arpent et a été offerte à l'ADC par la Régie de la capitale nationale pour une somme approximative de $74,000.

Le Bureau a autorisé l'acquisition du terrain et a donné l'ordre au Conseil Exécutif de préparer des plans de construction et de financement qui devront être présentés lors de l'assemblée annuelle qui aura lieu en 1972 à Montréal.

### Services éliminés pour réduire les frais

Le trésorier, le Dr J. B. Taylor, a présenté au Conseil Exécutif des chiffres qui ont révélé que les revenus pour 1972 atteindront la somme de $458,700, les dépenses seront de $458,900 et que les dépenses dépasseront les revenus de $200.

Pour y arriver, le trésorier avait dû recommander une réduction de $92,000 sur des dépenses originales qui avaient été évaluées à $550,900.

Le Bureau des Gouverneurs, quoiqu'étant en faveur d'un budget équilibré, a rétabli certaines dépenses pour les relations publiques et les communications. Par suite de cette décision, le budget a été adopté pour l'année 1972 avec des dépenses de $471,200 et un dépassement des dépenses sur les revenus de $12,500.

## L'Association

### Les étudiants tiennent leur troisième conférence nationale

Les représentants-étudiants de l'ADC des diverses facultés dentaires canadiennes se rencontreront du 20 au 23 octobre pour la troisième Conférence nationale des étudiants canadiens en art dentaire.

Cette année le congrès a lieu à Winnipeg à la Faculté dentaire de l'Université du Manitoba. Cette assemblée est de nouveau commanditée par le Comité des membres-étudiants du Conseil de l'enseignement de l'ADC. C'est le Fonds canadien pour l'enseignement dentaire qui apportera son appui financier grâce à une subvention spéciale offerte par la maison Colgate-Palmolive Ltée.

Parmi les principaux sujets qui seront abordés au cours du congrès, on peut noter: un rapport sur le premier programme de tables cliniques animées par des étudiants qui a eu lieu au congrès national de l'ADC à Ottawa, et une discussion sur les nouvelles orientations de l'enseignement dentaire, y compris les études universitaires d'une durée de trois ans. Les délégués discuteront aussi de sujets aussi divers que les relations faculté-étudiant et les projets de dentisterie communautaire.

## Chronique internationale

### Les dentistes américains touchés par le gel des prix et des salaires

Les dentistes et autres groupes qui tirent leurs revenus des services professionnels qu'ils rendent, ont été avisés d'établir le relevé des honoraires les plus élevés qu'ils ont exigé de leurs patients pendant les 30 jours qui précédaient le 15 août, de façon à se plier aux dispositions que le Président Nixon a prévu pour stabiliser le dollar. Ce relevé sera sujet à une inspection publique.

Les honoraires du dentiste ainsi que les salaires versés au personnel du cabinet dentaire sont tous deux directement touchés par ce plan de stabilisation économique d'une durée de 90 jours. Etabli le 15 août le plan restera en vigueur jusqu'au 12 novembre.

En gros, les nouvelles dispositions stipulent que les dentistes et autres groupes de professionnels ne devront pas augmenter leurs honoraires et ne devront accorder aucune hausse de salaire à leurs employés pendant cette période de gel. Le plafond au-dessus duquel les honoraires ne peuvent être élevés est lié à une "période témoin" – les 30 jours qui séparent le 16 juillet du 14 août. Les prix, comprenant les frais professionnels, ne peuvent dépasser ceux qui ont été exigés pour un "volume substantiel de transactions" durant les 30 jours précédant le 15 août. Un "volume substantiel de transactions" se définit comme 10 p.c. ou plus des transactions qui ont été engagées ou l'équivalent des services offerts pendant la période témoin.

En tant qu'employeur, le dentiste est tenu de respecter les directives qui régissent les salaires, ceci en accord avec le plan de stabilisation. Il ne peut augmenter le salaire d'un employé au delà du salaire le plus élevé que recevait cet employé pendant la période témoin. Il ne peut pas non plus accorder de boni ou d'indemnité de cherté de vie.

Le dentiste ne peut augmenter le salaire de l'employé que si ce dernier a été promu à un poste supérieur, a fait un travail supplémentaire ou exécuté un travail plus difficile que d'ordinaire. Dans ces cas seulement un dentiste peut augmenter le salaire d'un employé, et ce en rapport avec l'avancement normal de l'employé.

Les sociétés dentaires d'état aussi bien que locales qui avaient prévu des hausses de cotisations pendant cette période de 90 jours devront pour ce faire attendre jusqu'au 12 novembre.

## L'économie

### Le président de l'ADNE se prononce sur les mécaniciens dentaires

Le Dr C. E. Dexter, président de l'Association Dentaire de la Nouvelle-Ecosse s'est fait le porte-parole de son association en ce qui concerne l'accueil grandissant que le public réserve aux mécaniciens dentaires dans sa province.

Le Dr Dexter a tenu tout d'abord à exprimer sa sympathie envers les gens pour qui le coût d'une prothèse est devenu un véritable fardeau pécuniaire. Puis il a déploré le fait que certaines régions de la Nouvelle-Ecosse n'offrent aucun service dentaire. Mais la solution de ce problème d'un service dentaire mieux réparti et plus efficace repose non dans la reconnaissance de praticiens non qualifiés, mais dans l'aide que le gouvernement provincial doit apporter au public.

Le Dr Dexter a insisté sur le fait que la menace que posent aujourd'hui les mécaniciens dentaires ne touche pas seulement les dentistes mais aussi les techniciens dentaires qualifiés. Ces derniers possèdent leur propre association

et leur propre bureau d'examens. L'Association des Techniciens Dentaires de la Nouvelle-Ecosse fait suivre à ces techniciens un programme d'apprentissage et de formation pour s'assurer qu'ils possèderont toutes les qualifications nécessaires dans chaque partie de leur art.

Le président de l'ADNE a déclaré que les dentistes, d'une part apprécient l'aide de ces techniciens dentaires, et d'autre part leur accordent toute confiance pour cette partie technique du travail. Quant aux techniciens dentaires, ils laissent à leur tour le champ libre aux prothésistes lorsqu'on aborde l'aspect clinique des prothèses. Mais les mécaniciens dentaires, qu'aucune loi ni aucune licence n'autorisent à exercer en Nouvelle-Ecosse prennent sous leur entière responsabilité l'aspect à la fois clinique et technique de ces prothèses complètes, et ce à des coûts qui visent à éliminer les honoraires professionnels du dentiste.

Selon le Dr Dexter, les mécaniciens dentaires n'ont reçu aucune formation leur permettant d'établir les diagnostics en fonction des besoins réels du patient; ils ne possèdent pas non plus l'équipement professionnel nécessaire pour assumer leur responsabilité au niveau de la conception de la prothèse, de son ajustement, et de sa pose finale, et ceci en rapport avec les implications physiologiques qu'une telle pratique peut entraîner.

Le Dr Dexter a déclaré que son association insiste pour que chaque citoyen de la Nouvelle-Ecosse ait le droit de rechercher les meilleurs services dentaires possibles. "Accepter moins que ceci, et tourner le dos aux dentistes et aux techniciens dentaires causerait un préjudice extrêmement grave à l'avenir des services de santé dentaire dans cette province," a-t-il ajouté.

Il a continué en ajoutant que son association appuie le recrutement accru d'étudiants en art dentaire, l'établissement d'une nouvelle faculté dentaire, l'extension des services dentaires sous le MSI (qui administre le régime d'assurance-maladie dans cette province), la mise en place de services dentaires convenables dans tous les hôpitaux, la mise sur pied d'un régime privé d'assurance dentaire ainsi que la formation d'un plus grand nombre d'auxiliaires dentaires qui travailleront sous la surveillance directe de praticiens qualifiés.

Le président de l'ADNE a déclaré que sa province est la seule au Canada à n'avoir aucune politique dans l'établissement des dispositions à prendre dans la distribution des soins dentaires à ses citoyens et ce à tous les niveaux.

Il a enfin proposé au gouvernement provincial d'établir une commission d'étude et a affirmé que son association mettrait au point et indiquerait les structures générales nécessaires à l'établissement d'un système de services dentaires convenable en Nouvelle-Ecosse.

### Poursuivis en justice, des mécaniciens dentaires se font payer par des agences gouvernementales

Cinq mécaniciens dentaires de la région de Halifax ont reçu un total de $5,000 de diverses agences gouvernementales, bien qu'ils soient actuellement poursuivis en justice pour pratique illégale de l'art dentaire.

Selon un article publié dans le *Globe and Mail* du 1er septembre, les sommes furent versées par le ministère du Bien-être public de la Nouvelle-Ecosse, la Commission des accidents du travail et par les bureaux du bien-être de la ville de Halifax et du comté de Halifax. Le procureur général de la province fait actuellement enquête.

### Services dentaires accrus grâce à un programme de l'Université de l'Iowa

La faculté dentaire de l'Université de l'Iowa expérimentera sous peu la possibilité d'accroître le rôle de l'hygiéniste dentaire en lui accordant des fonctions additionnelles. Le but de ce programme consiste à vérifier si l'hygiéniste peut alléger la tâche du dentiste pour certaines parties du travail, le praticien restant toujours le seul responsable du traitement apporté au patient.

Pendant cette période expérimentale qui s'étalera sur six années, on choisira 40 étudiantes qui suivront le cours menant à un baccalauréat en hygiène dentaire; ces étudiantes prendront alors des cours spéciaux en anatomie, en anesthésie, en dentisterie opératoire et en périodontie. A l'aide de travaux en laboratoire et d'expériences en clinique, on enseignera à ces étudiantes à préparer et à soigner les cavités et à traiter les tissus entourant les dents, le tout fait sous l'étroite surveillance d'un dentiste.

### Ecoles-centres communautaires pour les enfants défavorisés

Le Conseil supérieur de l'éducation du Québec, dont le rapport sur l'éducation en milieux défavorisés a été publié récemment, a recommandé que les écoles des zones grises soient transformées en "écoles-centres communautaires".

Pour soutenir adéquatement l'enfant de milieu défavorisé, note le CSE, le système scolaire doit être assuré de pouvoir compter sur l'action et les ressources complémentaires du milieu environnant. "Quel impact peuvent produire un programme compensatoire, une réforme pédagogique, une addition du personnel enseignant si les besoins vitaux de l'enfant (nutrition, santé, habillement) ne sont pas satisfaits ou si l'école ne s'avère pas un cadre accueillant et éducatif pour les parents?".

Dans sa conception d'école-centre communautaire, accessible toute l'année, intégrée le plus parfaitement possible au milieu et coordonnée avec les autres agences et groupes sociaux, le Conseil suggère que, outre les services pédagogiques réguliers, soient également mis à la disposition de la population les services de santé et de bien-être et les services socio-culturels.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 septembre 1971:

*Fonds à revenu fixe* $12.102;

*Fonds d'actions ordinaires* $22.873.

L'avoir total (valeur marchande) du régime se montait à $10,469,415.85.

Au cours du mois précédent, les transactions ont été les suivantes: achat 6,000 actions de Abitibi Paper, 750 actions de Alberta Gas Trunk A, 250 actions de Alberta Gas Trunk "Rights", 12,000 actions de Canadian Cable Systems, et 1,500 actions de Dominion Foundries and Steel; vente 3,000 actions de AGT Data Systems.

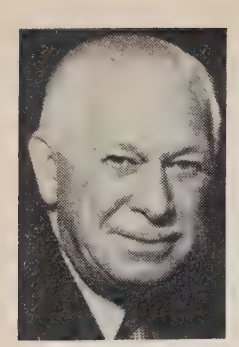
Pour de plus amples renseignements, veuillez écrire à: CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## L'hygiène dentaire publique

### Le Dr Connor quitte Ottawa et accepte un poste à Dalhousie

Le Dr R. A. Connor, d'Ottawa, qui a quitté son poste au Ministère de la Santé nationale et du Bien-être le 2 octobre a été nommé professeur associé en dentisterie communautaire et pédiatrique à l'Université Dalhousie à Halifax. Depuis 1963 le Dr Connor était chef du département des services dentaires au gouvernement fédéral.

Pendant les huit années qu'il a passées à Ottawa, le Dr Connor a collaboré à la création de plusieurs organismes importants; citons par exemple le Comité consultatif sur la santé den-



R. A. Connor

taire, responsable auprès du ministre fédéral de la santé. Plus récemment encore, il participait au Comité spécial Wells sur les auxiliaires dentaires.

Diplômé en art dentaire de l'Université de Toronto, le Dr Connor a exercé sa profession à St-Thomas, Ont, avant la seconde guerre mondiale. Pendant la guerre il servit avec le Corps dentaire de l'armée canadienne en Europe.

Le Dr Connor fut directeur de la division dentaire au Ministère de la Santé du Manitoba. Auparavant il occupait le poste de directeur régional de l'hygiène dentaire publique de la Péninsule du Niagara en Ontario. Il obtint un diplôme en hygiène dentaire publique à l'Université de Toronto en 1949.

L'ancien directeur est membre consultant en hygiène dentaire publique auprès de la Fédération Dentaire Internationale et auprès du Corps dentaire royal canadien. Il est aussi conseiller dentaire pour "Nutrition Canada" et l'an dernier il fut nommé membre sans droit de vote au Bureau des Gouverneurs de l'Association Dentaire Canadienne.

## La fluoration

### 7.3 millions de Canadiens boivent de l'eau fluorée

D'après les dernières statistiques compilées par le Bureau des renseignements au public de l'ADC, 7.3 millions de Canadiens utilisaient de l'eau fluorée quotidiennement au tout début de l'année 1971.

Ces personnes étaient desservies par 348 systèmes différents d'approvisionnement en eau potable préablement fluorée. Ces réseaux varient en importance, des plus petits qui alimentent des groupes d'une centaine de personnes au plus considérable, celui du Toronto métropolitain par exemple, qui dessert plus de deux millions d'habitants. D'autre part, 126 systèmes fournissent de l'eau naturellement fluorée.

Le pourcentage de la population qui utilise l'eau fluorée (artificiellement ou naturellement) représente 34 p.c. de la population totale du Canada et 46 p.c. du total possible, c'est-à-dire celle qui a accès aux aqueducs.

Ces statistiques et d'autres encore apparaissent dans la dernière édition de "La fluoration au Canada au 31 décembre 1970" publiée par le Bureau des renseignements au public de l'ADC. On peut obtenir un exemplaire de cette publication en écrivant au Bureau des renseignements au public, Association Dentaire Canadienne, 234 rue St-George, Toronto 180, Ont.

## La recherche

### Etude sur les dentifrices jugée incomplète

L'Association Dentaire Américaine déclare inadéquate et ne reposant sur aucune base scientifique l'étude effectuée dernièrement par l'armée américaine sur certaines marques de dentifrices courants qui seraient susceptibles de causer la stomatite.

Cette étude a été dirigée par l'Institut de recherche dentaire de l'armée, et bien que non publiée, elle a été rendue publique par le sénateur Claiborne Pell. Les résultats de cette étude ont connu un certain retentissement au Canada et aux Etats-Unis en dépit du fait que l'ADA eût informé à l'avance le sénateur Pell des défauts de l'étude en question.

Dans une déclaration émise immédiatement après l'annonce du sénateur Pell, l'ADA fit remarquer que les auteurs de l'étude eux-mêmes notaient des points faibles dans ce travail: les personnes utilisées dans l'échantillonnage n'étaient pas représentatives du public en général; aucun groupe de contrôle n'a été employé lors des études en clinique; les patients ne furent pas suivis pour déterminer si la stomatite disparaissait lorsqu'ils cessaient d'utiliser tel ou tel type de dentifrice. L'ADA a exprimé la crainte que l'action du sénateur Pell "puisse pousser plusieurs personnes, y compris les enfants, à cesser d'utiliser des dentifrices qui peuvent aider à réduire les caries dentaires. Ceci constituerait une atteinte grave à la santé publique".

Dans sa déclaration l'ADA insiste sur le fait que l'un des points les plus faibles de l'étude repose sur l'incapacité des enquêteurs à aboutir, par des méthodes scientifiques valables, à la conclusion qu'un certain type de stomatite était causé par certains dentifrices.

"Les critères de cette étude sont inadéquats. De nombreuses maladies buccales et générales peuvent présenter des symptômes cliniques semblables à ceux que l'on décrit dans l'étude."

Il y a cinq ans l'Association Dentaire Américaine établissait un programme de réactions défavorables. Ce programme couvre les médicaments, les anesthésiques, les dentifrices, etc. . . . Pendant ces cinq années, l'ADA a reçu plusieurs rapports sur des réactions défavorables aux médicaments et aux anesthésiques, mais n'a reçu que trois rapports sur des réactions défavorables aux dentifrices.

### Des rats aux intestins reliés contribuent à la recherche sur la carie

Pour aider à distinguer les facteurs locaux des facteurs généraux qui contribuent au développement de la carie dentaire, des scientifiques de l'Université de l'Alabama s'intéressent à des rats dont les intestins et les abdomens ont été reliés par une intervention chirurgicale délicate effectuée au microscope. Leurs travaux ont démontré que le phosphate offrait une bonne protection contre la carie chez le rat grâce à un mécanisme local.

La liaison chirurgicale des deux animaux s'appelle parabiose et doit se dérouler avant que les dents des animaux ont fait éruption, de façon à ce que les traitements anticariogènes que l'on veut essayer puissent avoir le maximum d'effets. Après que les animaux sont sevrés, on les place dans une cage spéciale munie d'une double mangeoire qui permet à l'animal de droite de se nourrir et de s'abreuver seulement dans la mangeoire de droite pendant que son jumeau artificiel n'utilise que la mangeoire de gauche.

On donne à l'un des rats de chaque paire un régime alimentaire contenant du trimétaphosphate de sodium purifié (TMP), le rat jumeau recevant le même régime, mais sans phosphate. Les rats mastiquant les aliments contenant du TMP eurent moins de caries que leurs jumeaux.

L'expérience démontra que la protection donnée aux dents des rats par le TMP provenait de la mastication (contact local), et non d'une action générale du phosphate digéré, puisque tous les deux animaux auraient reçu les mêmes produits digestifs absorbés à partir de l'intestin et renvoyés dans les vaisseaux sanguins.

L'utilisation d'animaux parabiosés et nourris individuellement pourrait aussi aider les scientifiques à étudier de quelle façon les antibiotiques, les médicaments ou les rince-bouches pourraient protéger les dents et les gencives.

# Dentistry in the news

## Canada and the Provinces

### NSDA president speaks out on mechanics issue

C. E. Dexter, president of the Nova Scotia Dental Association, has spelled out his association's attitude toward the growing public acceptance of dental mechanics in his province.

Doctor Dexter expressed sympathy for people to whom the cost of dentures has become a financial burden. He also stressed that many parts of Nova Scotia lack any form of dental service. But the answer to more and better dental health care, he insisted, lies in provincial government assistance to the public, not in the recognition of non-professional practitioners.

Doctor Dexter warned that dental mechanics pose a threat not only to practising dentists but also to qualified dental technicians. The latter have their own association and their own examining board. The Nova Scotia Dental Technicians Association conducts an apprenticeship training program to ensure that all technicians become proficient in all phases of their craft.

The NSDA president said dentists appreciate and rely on the skilled work of dental technicians. They respect the technical training of those who perform mechanical tasks in the making of dentures. Dental technicians, in turn, leave the clinical aspect of prosthodontics to the dental profession. But dental mechanics, who practise under neither law nor licence in Nova Scotia, undertake total clinical and technical prosthetic responsibility at costs which are aimed at eliminating professional dental fees.

According to Doctor Dexter, the mechanics are not trained to make diagnostic evaluations of the patient's needs; nor are they professionally equipped to assume responsibility for designing, fitting and placing the final appliance with due consideration for its physiological implications.

Doctor Dexter said his association insists that every citizen of Nova Scotia should have the right to seek the best possible dental care available. "To accept less than this, by turning our backs on the dental profession and the skills of dental technicians, would constitute a grave injury to the future of dental health care in this province," he declared.

He went on to say that his association supports the recruitment of more dental students, the establishment of a new dental school, the expansion of dental services under MSI (which administers the province's medical insurance plan), the establishment of proper dental services in all hospitals, the establishment of a dental prepayment plan, and expansion of training facilities for dental auxiliaries under appropriate professional supervision.

The NSDA president said his province is the only one in Canada that has no policy for the provision of dental care at any level for its citizens.

He commended a proposal to appoint a provincial dental task force and said his association would make a forceful presentation by outlining a constructive approach for a proper dental care delivery system in Nova Scotia.

## Dental Organizations

### London dentists elect Doctor Cluett

A. W. E. Cluett has succeeded F. V. Currie as president of the London and District Dental Society. Other officers are W. A. Dinniwell, president-elect; M. C. Nordine, treasurer; and B. R. W. Smith, secretary.

### Doctor Feasby is president of Royal College

W. H. Feasby, London, recently succeeded A. M. Hayes, Vancouver, as president of the Royal College of Dentists of Canada. F. W. Lovely, Halifax, was named vice-president. J. E. Speck, Toronto, continues as secretary-registrar-treasurer.

### Ottawa meeting to stress prevention of dental disease

The Ottawa Society for Prevention of Dental Disease will hold a meeting in Ottawa, November 19-21. The lecturer will be Jack Anderson of Wayzata, Minn, USA. Registration fee is $75 for dentists and $10 for dental auxiliaries. Further information may be obtained by writing to J. A. W. Chomyn, 340 McLeod St, Ottawa K2P 1A4.

### Analgesia course in Montreal

M. A. Goldstein and E. A. Fellows will be lecturers when the Quebec Analgesia Study Club presents a two day participation course in analgesia in dentistry in Montreal, December 3-4. Attendance is limited and the fee is $125.

For further information, please write to Miss G. Segall, 6000 Côte des Neiges Rd, Suite 377, Montreal 249, Que.

## Dental Education

### U of T names Doctor Speck head of periodontic department

Dean Gordon Nikiforuk has announced the appointment of J. E. Speck as professor of periodontics at the University of Toronto and as chairman of the department. He succeeds C. H. M. Williams who retired in July.

J. E. Speck

Doctor Speck, who graduated from Toronto in 1949 and earned a diploma in periodontics in 1952, has been a full-time teacher since 1967. He is also a consultant to Sunnybrook Hospital, Toronto.

In addition to his teaching appointment, Doctor Speck is registrar-secretary-treasurer of the Royal College of Dentists of Canada.

### 12 dentists earn Royal College fellowships

The Royal College of Dentists of Canada has conferred fellowships on 12 dentists in recognition of their achievements in various dental specialties. The

ceremony was held in a convocation during the Canadian Dental Association national convention in Ottawa.

Receiving fellowships were G. I. Baker, H. J. Levin and W. S. Prusin, all of Toronto; J. G. Zosky, Mississauga, Ont; A. D. Taliano, St. Catharines, Ont; J. A. Haws and C. W. Oyer, Calgary, Alta; R. C. McClelland, Edmonton; E. M. Hershenfield, Montreal; and P. R. Morgan, Minneapolis, Minn.

H. R. MacLean, Edmonton, and L. E. MacLachlan, Ottawa, were named honorary fellows.

### Dentists respond generously with CFDE month donations

Initial reports show that more dentists than ever before are responding to this year's Canadian Fund for Dental Education appeal for funds.

To date in 1971 support from the profession is over 40 per cent more than in the corresponding period last year, according to CFDE's Executive Director D. Murray McDonald.

"The Fund trustees have approved 1971 grants of over $86,000," says CFDE Chairman M. E. (Bud) Bower, adding: "I sincerely hope that any dentist who has not already forwarded his support for this year will send it without delay to the CFDE at 234 St. George St, Toronto 180."

### Green—you're keen; red—you're dead

A unique visual teaching display featuring a novel "electronic quiz" proved to be one of the feature attractions at the recent CDA national convention in Ottawa. Devoted this year to oral pathology, the display was prepared and exhibited by the Canadian Academy of Periodontology.

It consists of eight large illuminated view boxes demonstrating diagnostic problems in oral pathology. Accompanying the large transparencies of the clinical lessons are transparencies of microscopic sections and radiographs where applicable. Detailed case histories, including results of pertinent laboratory tests, are also provided.

Each of the eight problems have four possible diagnostic answers. When pressing the button for the correct answer, the view box lights up green. The other three buttons bring on a red light.

The transparencies will be changed periodically to vary the diagnostic problems that may be presented. Interested Canadian universities may borrow the display for limited periods by contacting J. D. Stewart, 311 Rubidge St, Peterborough, Ont.

### Educational opportunities

*Continuing education*

The University of Toronto Faculty of Dentistry is offering a continuing education course in diagnostic pathology, January 24-25, 1972.

The course comprises a review of oral diseases for the general practitioner. The clinical pathology of these conditions will be discussed as the rational basis for diagnosis and treatment and special methods of investigation will be described. Subjects to be covered include: pyogenic infections, specific infections, ulcerative conditions, cysts, inflammatory hyperplasias, keratotic lesions, and benign and malignant tumours.

The course will be presented by staff members of the Department of Oral Medicine and Pathology (Professors H. A. Hunter, J. H. P. Main, J. A. Pedlar and Associate Professor C. A. Munroe).

Cheques for the tuition fee ($60) should be made payable to the "University of Toronto." Applications should be sent immediately to G. S. Beagrie, Assistant Director, Division of Postgraduate Dental Education, Faculty of Dentistry, University of Toronto, 124 Edward St, Toronto 101, Ont.

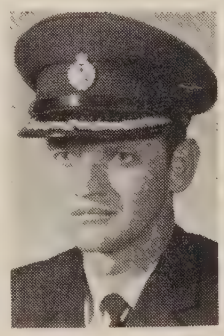
## Canadian Forces Dental Services

### Recent postings and promotions

Lt.-Col. J. M. Donely has taken over command of Number 35 Field Dental Unit in Germany. Col. Donely assumed the new post on July 5, replacing Lt.-Col. D. H. Protheroe who has been posted to Canadian Forces Base Esquimalt, BC.

Promotion of H. W. Brogan to lieutenant-colonel was announced September 1. Col. Brogan is a 1961 graduate of Dalhousie University and is serving in the training wing, Canadian Forces Dental Services School, at the Canadian Forces Base Borden, Ont.

Lt.-Col. J. M. Donely



Lt.-Col. H. W. Brogan

Several other officers have recently completed various continuing education courses. They include:

Maj. J. F. A. Marcil in periodontics at Walter Reed Hospital, Washington, now at No 1 Dental Unit, Ottawa;

Maj. J. H. Marion in orthodontics at the Université de Montréal, now at Canadian Forces Base Cold Lake, Alta; and

Maj. H. S. Wood in dental public health at the University of Toronto, now at the Division of Dental Services, Canadian Forces Headquarters, Ottawa.

## Public Health

### Halifax dentists launch mouthguard program

Mouth protectors, valued at more than $20 each, will be provided free of charge to high school football players, thanks to the Halifax-Dartmouth Dental Society.

The society approached officials of the Halifax Metro High School Football League last spring with the offer to combat the high cost of restoring the teeth of high school boys participating in contact sports.

As a result, participating dentists have already equipped teams in Halifax with mouth protectors, and members of other teams will follow.

### Doctor Pelletier joins Quebec Department of Social Affairs

Gilles Pelletier, formerly of Laval, Que, has accepted a new position in the Division of Dental Health of the Quebec Department of Social Affairs. He will be responsible for mass preventive measures, such as fluoridation and dental screening surveys, as well as the training of personnel.

Prior to this appointment, Doctor Pelletier taught at the Faculty of Dentistry, Université de Montréal. He also served on the publication committee of the Quebec Dental Surgeons Association.

### Doctor Connor leaves Ottawa; accepts Dalhousie post

R. A. Connor, Ottawa, who retired from the Department of National Health and Welfare October 2, has been named associate professor of community and paediatric dentistry at Dalhousie University, Halifax. Doctor Connor had been chief of the federal government's Dental Health Division since 1963.

R. A. Connor

Pictured at a final meeting of the Wells Ad Hoc Committee on Dental Auxiliaries in Ottawa are: (seated, l to r) R. A. Connor, Ottawa; and Chief Justice Dalton C. Wells, Toronto; (standing, l to r) G. D. W. Cameron, Peterborough, Ont; M. A. Kamienski, Toronto; C. W. B. McPhail, Saskatoon; Cleve Kidd, Montreal; C. E. Dexter, Halifax; Marjorie Jackson, Toronto; J. G. Bélanger, Montreal; B. A. McFarlane, Ottawa; T. L. Marsh, Ottawa; A. M. Hunt, Toronto; and Sharon French, Ottawa.

In the more than eight years that he spent in Ottawa, Doctor Connor helped to establish several important consultative bodies, including the Advisory Committee on Dental Health to the federal health minister. More recently, he worked very closely with the Wells Ad Hoc Committee on Dental Auxiliaries.

A dental graduate of the University of Toronto, Doctor Connor practised in St. Thomas, Ont, prior to World War II. During the war he served with the Canadian Army Dental Corps in Europe.

Doctor Connor was formerly director of the Dental Division of the Manitoba health department. Prior to that he was regional director of dental public health in Ontario's Niagara Peninsula. He earned a diploma in dental public health at the University of Toronto in 1949.

The former dental director is a dental public health consultant to the Fédération Dentaire Internationale and the Royal Canadian Dental Corps. He is also a dental adviser to Nutrition Canada and served last year as a non-voting member of the Canadian Dental Association's Board of Governors.

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on September 30, 1971:

*Fixed Income Fund* $12.102;
*Common Stock Fund* $22.873.

Total assets (market value) of the plan were $10,469,415.85.

The following portfolio purchases and sale occurred during the preceding month: bought 6,000 shares Abitibi Paper, 750 shares Alberta Gas Trunk A, 250 shares Alberta Gas Trunk "Rights," 12,000 shares Canadian Cable Systems, and 1,500 shares Dominion Foundries and Steel; sold 3,000 shares AGT Data Systems.

For further information please write to CDA-sponsored Pension and Insurance Plans, 230 St. George St, Toronto 180, Ont.

## Deaths

Jacob, Antonio. 55. Grand'Mère, Que. Université de Montréal, 1943. 11-8-71.

Johnstone, Donald Guthrie. 61. Niagara Falls, Ont. University of Toronto, 1933. 22-9-71. Survived by Margaret M. Gauld (wife); Roderick (son); Ruth Anne (daughter); and Mrs. Hurbert O'Connor (sister).

Laing, William Oswald. 74. Essex, Ont. Royal College of Dental Surgeons of Ontario, 1923. 30-8-71. Survived by Mrs. A. R. Graham (daughter); Mrs. M. C. Parish (sister); and four grandchildren.

Lorentz, Jerome Reinhardt. 71. Baden, Ont. Royal College of Dental Surgeons of Ontario, 1924. 17-9-71. Survived by Luella S. (wife).

Montgomery, Capt. John Winston. 30. Lahr, Germany. University of Toronto, 1967. 11-9-71. Survived by Catherine M. of Ailsa Craig, Ont (wife).

Attending the March 25-26, 1971, Ottawa meeting of the Advisory Committee on Dental Health to the Minister of National Health and Welfare were: (seated, l to r) J.-P. Lussier, Montreal; C. H. McCormick, Winnipeg; R. A. Connor, Ottawa, chairman; B. A. McFarlane, Ottawa; and T. L. Marsh, Ottawa; (standing l to r) W. G. McIntosh, Toronto; W. P. Munsie, Vancouver; Frank McCombie, Victoria; K. J. Paynter, Saskatoon; A. P. Salter, Edmonton; R. M. Grainger, Ottawa; J. E. Russell, St. John's Newfoundland; R. E. Feasby, Toronto; R. G. Romcke, Charlottetown; W. C. King, Halifax; A. M. Hunt, Toronto; and T. M. Curry, Regina.

# Effects of three types of pins on compressive strength of dental amalgam

**D. F. Duperon, DDS, MSc**
**Z. Kasloff, DDS, MSD**
**Winnipeg**

*This test with smooth and serrated stainless steel pins and electroplated platinum-gold-palladium pins shows that all diminish the compressive strength of dental amalgam. Serrated pins differed from the other pins in that amalgam with two serrated pins was notably weaker than specimens with two of the other pins, while amalgam with four serrated pins was significantly stronger than specimens with four of the other pins. Though none of the decrements in compressive strength were clinically significant, the authors recommend that a minimum number of pins, adequately spaced, be used.*

*Ce test fait avec des tenons unis et dentelés en acier inoxydable et des tenons en platine-or-palladium electro-plaqué montre bien que tous diminuent la résistance à la compression de l'amalgame dentaire. Les tenons dentelés différaient des autres sortes en ce que l'amalgame avec deux tenons dentelés était notablement moins résistant que les spécimens avec deux autres variétés de tenons. Au contraire l'amalgame avec quatre tenons dentelés était plus résistant qu'avec quatre autres tenons. Quoique aucune de ces diminutions de la résistance à la compression n'avait grande portée du point de vue clinique, les auteurs recommandent qu'un nombre minimum de tenons, convenablement espacés, soit utilisé.*

Retention of restorative filling materials such as gold foil or amalgam in teeth is normally achieved by producing adequate retention form within the walls of the prepared cavity. Dentists have always been faced with the problem of securing sufficient retention in teeth grossly mutilated by caries where bulk coronal tooth structure is lacking. Pins and screws have been used as alternate means of gaining the required retention form.

Three kinds of commercially available stainless steel pins are currently in vogue. Cemented pins[1-3] require a pinhole that is larger in diameter than the pin. The serrated stainless steel pin is cemented into the hole with zinc phosphate cement. Friction lock pins[4] depend on the elasticity of the dentine for retention. The hole is smaller in diameter than the pin, and the smooth pin is driven into the hole with a holder and mallet. Threaded pins are screwed into a hole that is also slightly smaller in diameter.[5]

This paper deals with serrated and smooth stainless steel pins and pins capable of fusing with amalgam. It describes the in vitro effect of these pins on the compressive strength of amalgam.

## Review of literature

In 1875 Davis[6] described a method of increasing the retention of gold foil restorations. After completing the cavity preparation, he drilled small holes into the tooth structure and inserted gold screws into these holes. Part of each screw was left to project into the cavity preparation and the filling was condensed around them. In 1899 Storer[7] described a similar technique for use in amalgam restorations.

The use of stainless steel pins to retain large amalgam restorations was popularized by Markley.[1-3] He postulated that these restorations were "as different from ordinary amalgam as the concrete in a sidewalk is different from the reinforced columns of a modern skyscraper, and by the same principle."

Other investigators[8-11] have described similar techniques. They point out that amalgam reinforced with pins is stronger and possesses better physical properties than unreinforced amalgam.

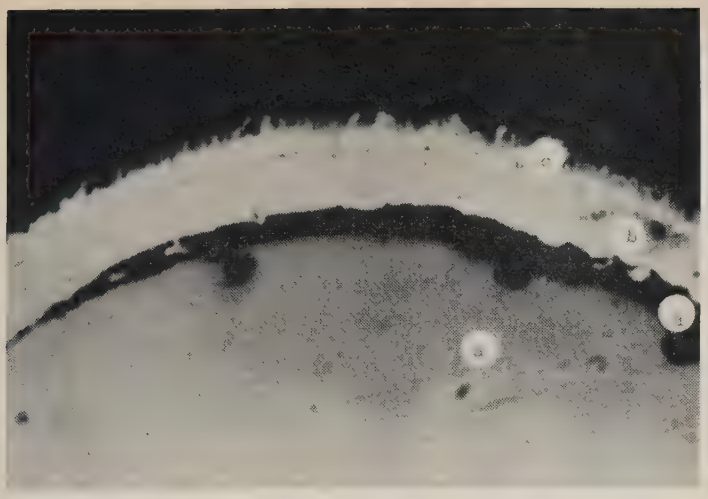


Fig 1 Photomicrograph of steel wire plated with copper and silver (original magnification x 160). (s) steel pin, (b) copperplating, (c) silverplating, (d) void.

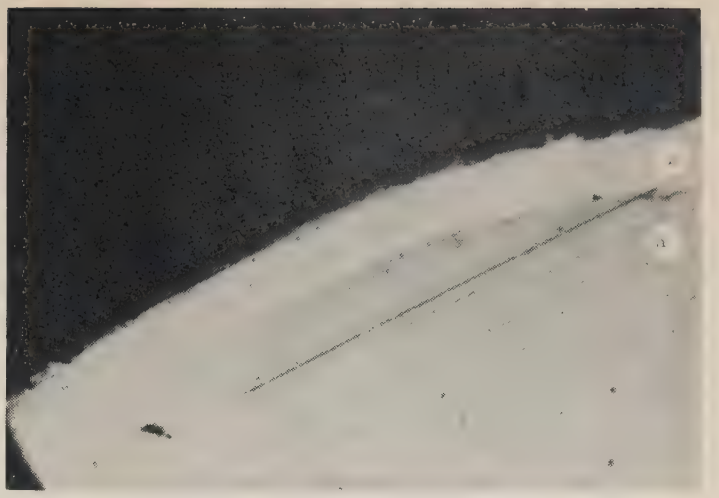


Fig 2 Photomicrograph of platinum-gold-palladium wire plated with sterling silver (original magnification x 160). (a) PGP wire, (b) sterling silver plate.

Wing[12] observed that stainless steel pins reduced the compressive strength of dental amalgam specimens tested at one hour and 24 hour intervals after condensation. Silver pins had a comparable effect at the one hour test period, but the decrease in strength with silver pins was less at the 24 hour test period. In specimens containing stainless steel pins he found that fracture of the amalgam occurred along the pins.

Wing also noted a characteristic void around the stainless steel pins in amalgam specimens. He attributed this to an accumulation of mercury around the pins being drawn back into the amalgam as the setting reaction proceeded. A decrease in the compressive strength of amalgam containing stainless steel pins was also noted by Going.[5, 13]

Smith[14] placed amalgam restorations in extracted teeth using stainless steel pins for retention. The pin-retained amalgam fractured at lower pressure than did control specimens without pins.

Welk and Dilts[15] observed that smooth and serrated stainless steel pins reduced the compressive and transverse strength of dental amalgam.

## Methods and materials

We used three commercially available silver alloys. They represent three types of alloy commonly employed by dental practitioners. They were:

1. A conventional alloy: 20th Century fine grain alloy (Caulk, Milford, Delaware);
2. A dispersion phase alloy: Dispersalloy Spherical 400 (Western Metallurgical Co Ltd, Edmonton);
3. A spherical particle alloy: Spheralloy (Kerr Mfg Co, Detroit).

The three types of pins were:

1. Serrated stainless steel pins, 0.022 inches in diameter. These are used in the cemented pin technique advocated by Markley.[1]
2. Smooth stainless steel pins, 0.022 inches in diameter. These are used in the friction lock technique described by Goldstein.[4]
3. Silverplated platinum-gold-palladium pins, 0.023 inches in diameter.

To reduce the deleterious effects of pins on the mechanical properties of amalgam, several investigators[12, 16, 17] have tried materials which would fuse with silver amalgam. Goldplated, silverplated and copperplated stainless steel and ordinary steel pins produced no beneficial effect, however. Though an extremely accurate electroplating apparatus was used to silverplate stainless steel and ordinary steel wires, the bond between the wire base and the silverplate was so poor that the plated surface could be stripped from the wire with moderate finger pressure.

An attempt was also made to copperplate ordinary steel wire and then cover the copper with an electroplated layer of sterling silver. Despite an excellent bond between the silver and the copper, large voids were still present between the copper layer and the base wire (Fig 1). Formation of oxides on the surface of the steel wire could account for the lack of close adaptation of the copper during plating.

Failure by other investigators to find improvement in the strength value of amalgam containing surface-plated pins could likewise be attributed to the inadequate bond between the plated surface of the pin and the base metal core, rather than to a lack of fusion between the amalgam and the plated layer.

To overcome the problem of oxide formation we selected a noble metal wire composed of platinum, gold and palladium. The wire was electroplated with sterling silver, using an electrolyte of potassium cyanide with a plating current of 15mA. Silver was electrodeposited on the platinum-gold-palladium wire to a thickness of 0.0005 inches. This yielded a wire with a total diameter of 0.023 inches. Figure 2 illustrates the intimate adaptation of the plated material to the base wire.

The ultimate compressive strength of dental amalgam has long been used as a criterion for measuring amalgam strength. Phillips[18] and Taylor et al[19] were among those who investigated this property in silver amalgam at various time intervals. They found that amalgam continued to increase in strength over a six month period. Because of the long time interval before amalgam achieves its final strength, one hour and 24 hour intervals were selected to determine early and final setting strength values, recognizing that the 24

hour value represents 86-96 per cent of the final strength.[18, 19]

The mould used to prepare the specimens for compressive strength testing is shown in Figure 3. It formed a specimen 0.240 inches long with a cross sectional area of 0.0308 sq in. Four plungers were constructed to fit into the mould. One plunger had a smooth face for preparing samples without pins. Each of the other plungers were tapped with one, two or four holes, 0.024 inches in diameter, so that pins could be placed in them and held securely while the amalgam was being condensed around them. Figure 3 illustrates the method of pin placement in each of the plungers. The pins were cut manually to a length of 0.2960 inches (s = 0.002 inches) and the ends were finished perpendicular to their long axes.

Conventional alloy in pellet form was mixed with mercury dispensed from a Caulk dispenser fitted with an "E" plunger calibrated to deliver a mercury spill of 394.6mg (S.E. 0.316mg). This produced an amalgam mix containing 50.4 per cent mercury by weight. The alloy and mercury were triturated for 20 seconds with a mechanical amalgamator (Cresent Dental Mfg Co, Chicago), followed by a five second mull with the pestle removed from the capsule. The assembled mould with the appropriate plunger was placed in a device designed to ensure constant condensation pressure on the amalgam. The apparatus (Fig 4) was adjusted so that 3lb of thrust on the mould was necessary to activate the lever action.

A two-pellet mix of amalgam was prepared as described previously and placed on a sheet of washed rubber dam for ease of handling. The mix was divided into three increments, each consisting of two carrier loads. Each portion was condensed with a round smooth-faced condenser 0.043 inches in diameter, using 30 strokes with 3lb pressure. Mercury, brought to the surface during condensation, was removed following condensation of the second and third increments. A single-pellet mix of amalgam was then made and divided into three increments, each condensed with a similar condenser 0.068 inches in diameter, using the same pressure and number of strokes. The final increment was added to overfill the mould, and condensed with a larger instrument 0.101 inches in diameter. After trimming, the specimen was ejected from the mould and stored in air at room temperature until the tests were conducted.

Ten sets, each containing at least six specimens, were tested after one hour, and an additional 10 sets were tested after 24 hours. One set in each group of 10 had no pins and acted as a control. The remaining sets had either one, two or four of one of the three types of pins investigated in the study. A total of 132 specimens was prepared.

Dispersion phase alloy, in pellet form, was mixed with mercury dispensed from a Caulk dispenser fitted with a "D" plunger and calibrated to deliver 405.3mg (S.E. 0.84mg) per spill. This produced amalgam containing 50.6 per cent mercury by weight. Trituration and condensation were performed as described previously except that a condenser 0.068 inches in diameter was substituted for the 0.043 inch diameter condenser. Similar sets, totalling 120 specimens, were prepared for each test period.

Spherical particle alloy, in pellet form, was proportioned using the device supplied by the manufacturer.

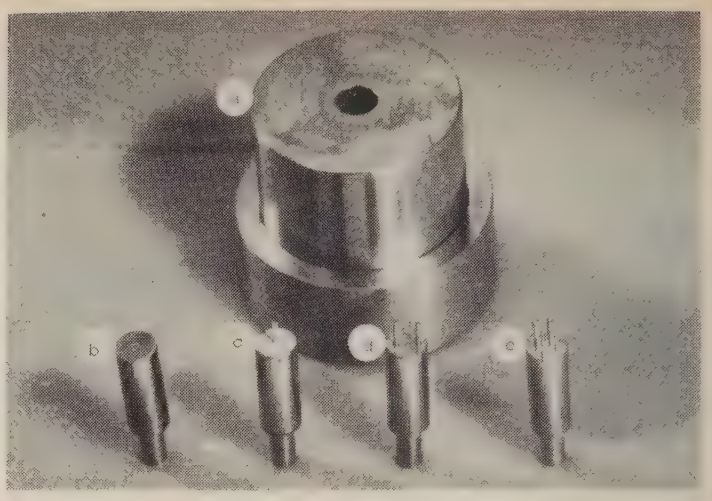


Fig 3 Compressive strength specimen assembly. (a) assembled mould, (b) control plunger (no pins), (c) one pin plunger with plated pin, (d) two pin plunger with serrated stainless steel pins, (e) four pin plunger with smooth stainless steel pins.

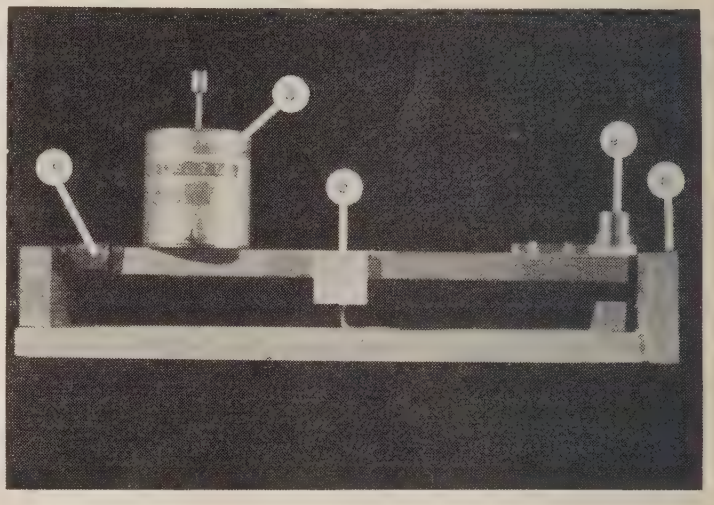


Fig 4 Constant pressure condensing apparatus. (a) mould in place, (b) hand rest, (c) fulcrum, (d) counter weight, (e) additional counter weights.

The resultant mix had a mercury content of 49.9 per cent mercury by weight. The specimens were condensed and finished using the same method described for the dispersion phase alloy. Because of the smaller volume of this mix only two increments could be obtained from a two-pellet mix; therefore an additional two-pellet mix was made and the third large increment was taken from this mix. Similar sets, again totalling 120 specimens, were produced for each test period.

Compressive strength tests were performed using a Riehle Universal Screw-Power Testing Machine. Lower bearing plates were machined to accept specimens containing pins to simulate their clinical use in amalgam restorations. Inclusion of pins in specimens prevented the ends of most specimens from being made surface plane; therefore a small square of moistened blotting paper was interposed between the specimen and the metal bearing plate to distribute the pressure equally over the surface of the bottom of the specimen.

Tests at one hour after the completion of condensation were conducted with a variability of 15 seconds, whereas 24 hour tests were made within 15 minutes of

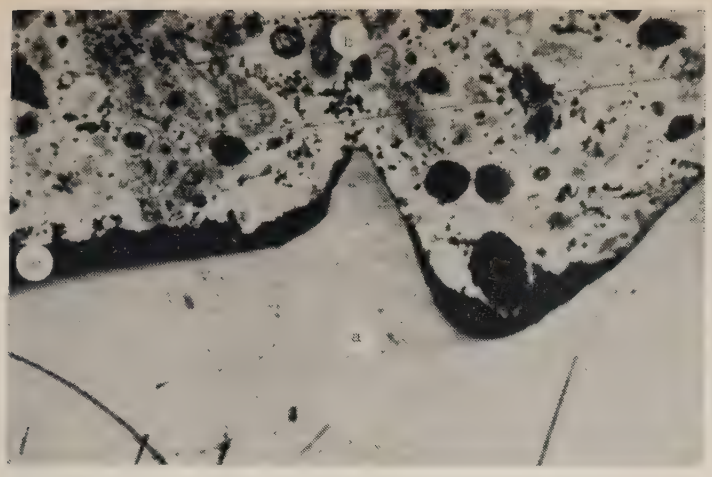


Fig 5 Photomicrograph of a serrated stainless steel pin embedded in amalgam (original magnification x 160). (a) serrated stainless steel pin, (b) reacted silver amalgam, (c) void at interface between pin and amalgam.

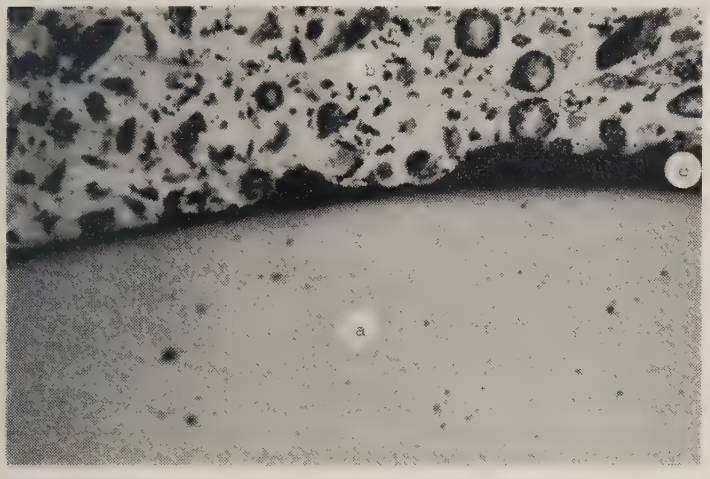


Fig 6 Photomicrograph of a smooth stainless steel pin embedded in amalgam (original magnification x 160). (a) smooth stainless steel pin, (b) reacted silver amalgam, (c) void at interface between pin and amalgam.

the time interval. A crosshead speed of 0.022 inches per minute was used for all tests.

Three samples from each set of specimens were retained after compressive testing for residual mercury determination to ensure standardization of specimen preparation. The method for this determination was that described by Crawford and Larsen.[20] A total of 192 residual mercury determinations was performed on the compressive strength specimens.

## Results

*Reaction between plated pins and amalgam* — Photomicrographs of serrated and smooth stainless steel pins, embedded in amalgam, are shown in Figures 5 and 6. A void of considerable magnitude exists at the pin and amalgam matrix interface.

An electroplated platinum-gold-palladium pin, embedded in amalgam, is illustrated in Figure 7. Microscopically, it appears that there is a metallurgical union between the amalgam and the surface of the plated pin. An electron photomicrograph (Fig 8) reveals the bond achieved between the platinum-gold-palladium pin and the electro-deposited silver, and at the interface between the silver and the amalgam matrix.

*Ultimate compressive strength*—The residual mercury concentration of the specimens ranged between 43.66 per cent and 47.82 per cent for all alloys. A covariance analysis, designed for correction of the compressive strength values for the percentage of mercury, produced a pooled regression coefficient of 12.49 ± 146.2. This indicates an absence of any relationship between compressive strength and residual mercury concentration. Correction of the compressive strength for mercury content was therefore unwarranted.

The mean values for all combinations of pins and alloys, tested at one hour, are shown in Table 1. Analysis of the data was obtained by an analysis of vari-

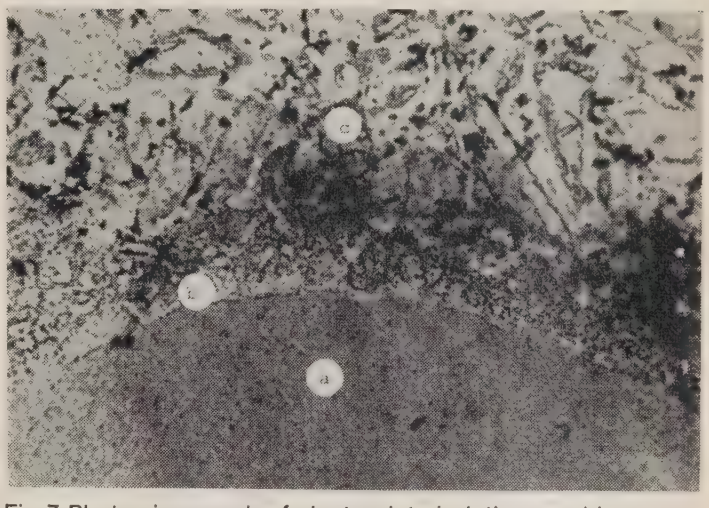


Fig 7 Photomicrograph of electroplated platinum-gold-palladium pin embedded in amalgam (original magnification x 160). (a) PGP pin, (b) electroplated sterling silver, (c) reacted silver amalgam.

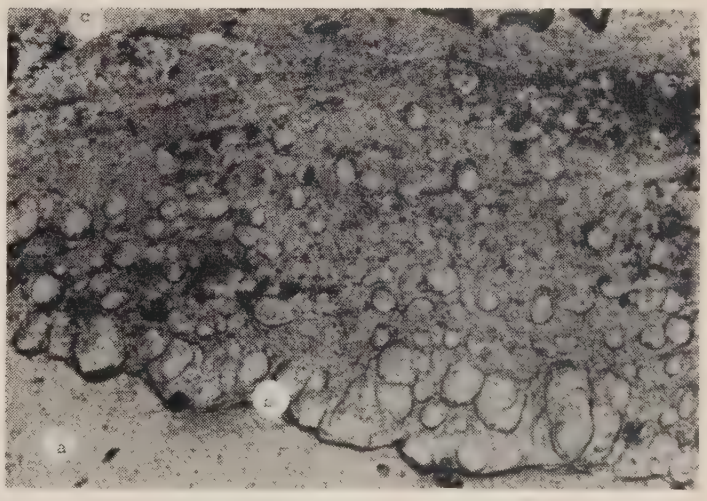
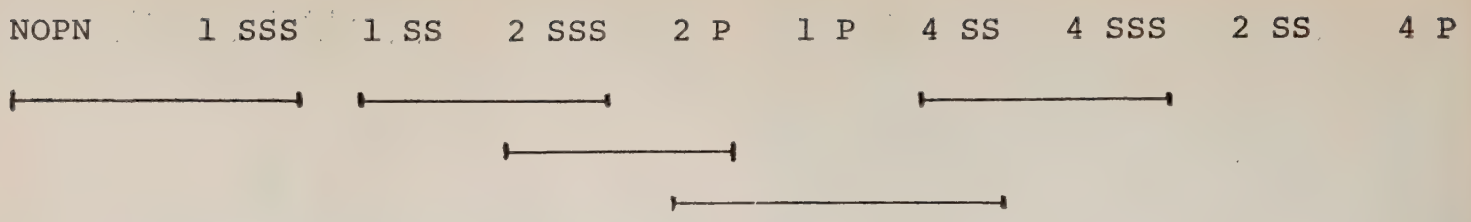


Fig 8 Electron photomicrograph of electroplated platinum-gold-palladium pin embedded in amalgam (original magnification x 22,000). (a) PGP pin, (b) electro-deposited sterling silver-pin interface, (c) sterling silver-amalgam interface.




⟷ - No Significant Difference (P <.05)

Fig 9 Duncan's multiple range test of results illustrated in Figure 9. SS, serrated stainless steel. SSS, smooth stainless steel. P, plated. NOPN, control (no pin).

ance, followed by a Duncan's multiple range test (Fig 9).

A bar graph (Fig 10) illustrates the effect of the three pin materials on the one hour compressive strength of amalgam, irrespective of alloy type.

A similar analysis (Table 2, Fig 11) was conducted on the values obtained from tests on 24 hour specimens. Table 2 indicates the mean values for all combinations of pins and alloys included in this test. Figure 12 illustrates the effect of the three pin materials on the 24 hour compressive strength of amalgam, irrespective of alloy type.

A decrease in compressive strength was observed when one hour and 24 hour specimens containing all types and number of pins were compared with control specimens. Increasing the number of pins caused a corresponding loss of compressive strength, except when serrated stainless steel pins were used. Specimens with one or two serrated stainless steel pins showed a trend similar to those with smooth stainless steel and plated platinum-gold-palladium pins. Specimens containing four serrated stainless steel pins, however, gained significant strength when compared to the two pin specimens, except in the case of the dispersion phase alloy.

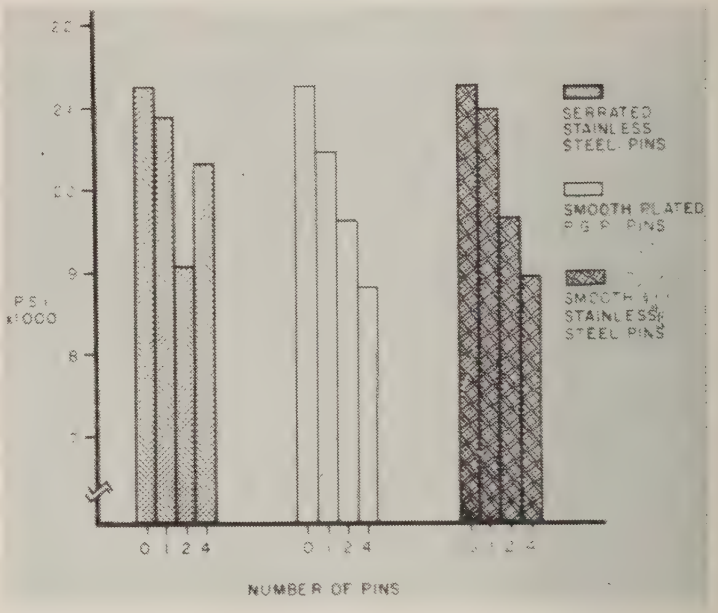
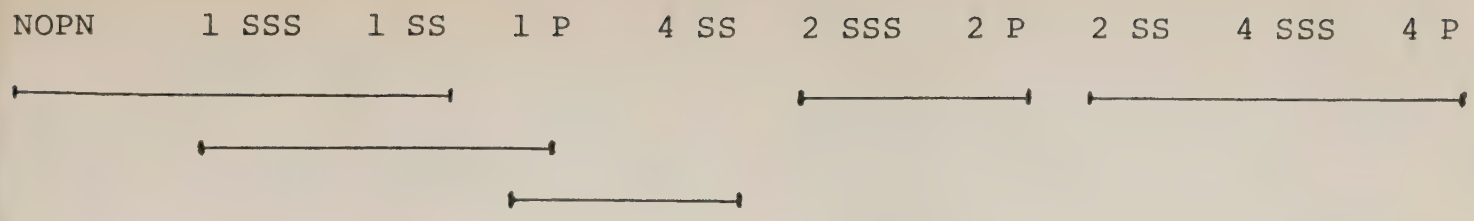



Fig 10 The effect of pins on the one hour compressive strength of amalgam, irrespective of alloy type.

**Effect of various pin materials on the one hour compressive strength of three dental amalgams** **Table 1**

| Pin | Ultimate compressive strength (PSI x 1,000) Alloy | | | |
|---|---|---|---|---|
| Type and No | Conventional | Dispersion | Spherical | Mean |
| Control (no pin) | 19.07 | 21.64 | 23.20 | 21.24 |
| 1 SS | 18.70 | 20.68 | 23.32 | 20.90 |
| 1 P | 18.27 | 20.91 | 22.16 | 20.45 |
| 1 SSS | 18.32 | 22.23 | 22.41 | 20.99 |
| 2 SS | 18.25 | 18.41 | 20.54 | 19.07 |
| 2 P | 16.95 | 19.95 | 21.95 | 19.62 |
| 2 SSS | 18.06 | 19.50 | 21.40 | 19.65 |
| 4 SS | 19.40 | 20.25 | 21.26 | 20.31 |
| 4 P | 16.64 | 19.41 | 20.11 | 18.82 |
| 4 SSS | 17.65 | 18.97 | 20.07 | 18.96 |

SS = Serrated stainless steel
P = Smooth plated platinum-gold-palladium
SSS = Smooth stainless steel




⟷ - No Significant Difference (P <.05)

Fig 11 Duncan's multiple range test of results illustrated in Figure 10. SS, serrated stainless steel. SSS, smooth stainless steel. P, plated. NOPN, control (no pin).

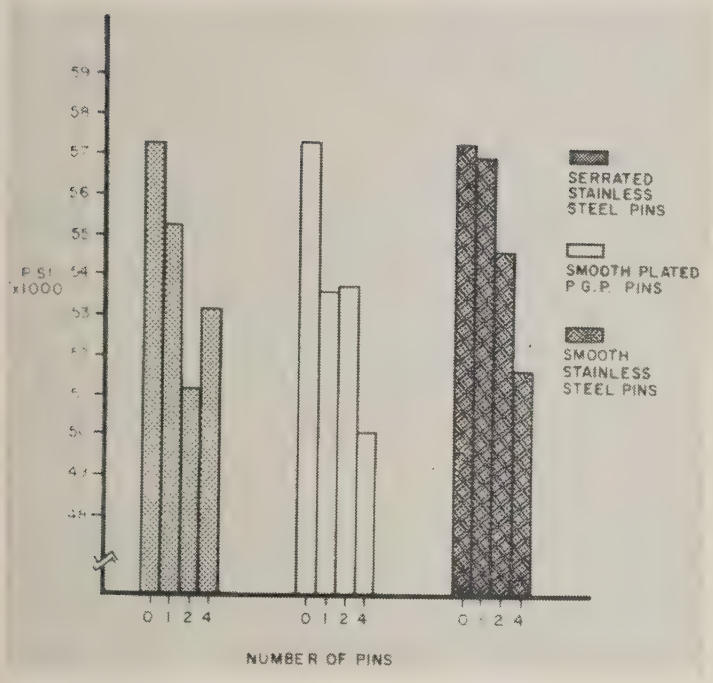



Fig 12 The effect of pins on the 24 hour compressive strength of amalgam, irrespective of alloy type.

## Discussion

The loss of compressive strength in specimens with pins may result from stress concentrations around the pins, relief of stress due to plastic deformation of the amalgam, and possible cleavage planes set up in the material by the positional arrangement of the pins.

Compressive loads may produce areas of high stress concentration around all types of pins. This could account for failure of the specimens at a lower level of compressive stress. Some relief could result from the flow or creep which amalgam normally exhibits under stress. This would tend to diminish the effect of stress concentration around the embedded pins — a phenomenon which can be observed when comparing the 24 hour values for dispersion phase alloys and spherical particle or conventional alloys. Innes and Youdelis[21] have shown that the dispersion phase alloy exhibits considerably less creep than other alloys. Tables 1 and 2 indicate that the compressive strength declines more sharply in dispersion particle amalgam containing pins than in conventional or spherical particle alloys.

We thought that a fusion of pins with the amalgam matrix might reduce the flow of amalgam in the area around the pins, but the results do not bear this out.

**Effect of various pin materials on the 24 hour compressive strength of three dental amalgams** — Table 2

| Pin | Ultimate compressive strength (PSI x 1,000) Alloy | | | |
|---|---|---|---|---|
| Type and No | Conventional | Dispersion | Spherical | Mean |
| Control (no pin) | 55.63 | 62.01 | 56.53 | 57.27 |
| 1 SS | 52.71 | 59.12 | 53.92 | 55.25 |
| 1 P | 50.35 | 57.52 | 52.88 | 53.55 |
| 1 SSS | 52.95 | 62.47 | 55.60 | 57.01 |
| 2 SS | 48.63 | 54.13 | 51.81 | 51.51 |
| 2 P | 51.53 | 55.98 | 53.65 | 53.73 |
| 2 SSS | 51.51 | 58.52 | 53.87 | 54.63 |
| 4 SS | 51.83 | 52.88 | 54.64 | 53.12 |
| 4 P | 50.46 | 48.55 | 51.21 | 50.07 |
| 4 SSS | 49.08 | 53.87 | 51.87 | 51.61 |

SS = Serrated stainless steel
P = Smooth plated platinum-gold-palladium
SSS = Smooth stainless steel

It is possible that, in specimens with two pins, a cleavage plane is established along a line connecting the two pins. The void which is evident around the stainless steel pins could perhaps magnify the cleavage plane effect when the material is subjected to stress. There was no difference in compressive strength between the two pin specimens containing plated pins and those containing smooth stainless steel pins. Therefore, the void must be less significant in causing a noticeable reduction of compressive strength.

The one hour and 24 hour results show that plated platinum-gold-palladium and smooth stainless steel pins had a similar influence on the compressive strength of amalgam. The strength of all alloys declined progressively as the number of pins increased from one to four. Serrated stainless steel pins produced a different trend, however. When two pins were used, compressive strength diminished more sharply with serrated pins than with plated or smooth stainless steel pins. This trend was reversed, however, in specimens containing four pins and there was a significant difference between specimens with serrated and smooth pins.

We ascribe this apparent difference to the serrations in the pins. The cleavage plane potential is probably present with all types of pins. In specimens with serrated pins, when a compressive load is applied, the amalgam may slide along the pin and develop a lateral force as it tries to move past the serrations. This force being at right angles to the pin tends to enhance the effect of the cleavage plane. Specimens with four serrated pins possess six different cleavage planes, however, with accompanying stresses acting in different directions, some at right angles to others. The forces exerted on the six cleavage planes tend to counteract one another, significantly diminishing the risk of fracture.

We do not consider the decrease in compressive strength after 24 hours, although substantial, to be clinically significant. In none of our specimens were the compressive strength values lower than those found for enamel and dentine by Stanford et al.[22]

## Summary

The effects of three types of pin material on the compressive strength of dental amalgam were determined by mechanical tests conducted on a total of 384 specimens. These were divided into groups of six or more, each with a specific combination of type and number of pins and type of alloy. Sets of specimens, with pins embedded to simulate their clinical use as retentive devices, were tested for ultimate compressive strength.

Specimen preparation was standardized by performing residual mercury determinations on every second specimen used in the experiment. Statistical analysis of the results involved an analysis of variance followed by Duncan's multiple range test.

As the number of pins were increased, regardless of type, the compressive strength of the specimens diminished. Specimens with serrated stainless steel pins behaved differently from those with smooth surface pins.

## Conclusions

1. Retentive pins diminished the ultimate compressive strength of dental amalgam.
2. Serrated stainless steel pins did not have the same effect on compressive strength as smooth stainless steel pins or electroplated platinum-gold-palladium pins.
3. The diminution of compressive strength in specimens containing up to four pins does not seem clinically significant.
4. Within the range of variability of residual mercury in our specimens, there was no correlation between compressive strength and residual mercury content.
5. Because of the progressive decrease in compressive strength in specimens containing pins, we recommend that a minimum number of pins, adequately spaced, be used.

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# Oral health status in the three London, Ontario, homes for the aged

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*This article describes the oral health status in three London homes for the aged. The 517 residents examined needed 524 complete dentures. In addition, 295 teeth required treatment for dental caries and the tissues around 422 teeth required some form of surgery because of periodontal disease. This group was not receiving regular dental care as evidenced by the fact that 77.9 per cent had not visited a dentist during the preceding five years.*

*Cet article décrit l'état de santé dentaire dans trois maisons pour vieillards de London. Les 517 personnes qui furent examinées avaient besoin de 524 prothèses complètes. De plus 295 dents nécessitaient des soins pour carie dentaire, et les tissus autour de 422 dents nécessitaient un traitement chirurgical à cause de maladie péridentaire. Ce groupe ne recevait aucun soin dentaire régulier puisque 77.9 p.c. des personnes interrogées n'avaient pas vu de dentiste durant les cinq années précédentes.*

The impact of general preventive medicine has so increased the average life expectancy of Canadians that the proportion of elderly people continues to grow. Because of this increase society seems to be showing more interest in their way of life.

In the past, most elderly people were resigned to any dental discomfort, and many still are. They have been the profession's forgotten people. Recently, however, Canadian dentists have demonstrated an increasing concern for their neglected oral health needs.[1]

We do not know enough about the oral conditions, community resources and problems of this particular group. This survey was conducted as an attempt to obtain information for the city of London, Ontario.

## Source of data

During the summer of 1969, 517 people from the three homes for the aged in London — McCormick Home for Aged People, Marian Villa and the Dearness Home — were given visual oral examinations by the authors. For admission as a resident to these homes, a person usually had to be over 60 years of age, ambulatory and capable of dressing, feeding and generally taking care of himself. The group included some physically handicapped people as well as some in various stages of senility. All examinations were carried out in the homes with portable equipment.

The 517 individuals represented 66 per cent of the total number of residents in the three homes who volunteered to participate in the survey. The percentage participation for each individual home was 77 per cent in the McCormick Home, 74 per cent in the Dearness Home and 51 per cent in Marian Villa.

The median age in this survey was between 80 and 89. Over 99 per cent of those examined were Caucasian. Less than 8 per cent were from the professional classes. However, many residents of the privately operated McCormick and Marian Villa homes were from the middle and upper economic brackets. Some of the residents from the municipally operated Dearness Home received public assistance.

**Condition of the dental arches in 517 London persons aged 50-99** **Table 1**

| Age | Subjects | Neither arch edentulous | | One arch edentulous | | | | | | Both arches edentulous | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Maxilla | | Mandible | | Total | | | |
| | | N | % | N | % | N | % | N | % | N | % |
| 50-59 | 7 | 2 | 28.6 | 1 | 14.3 | 0 | 0 | 1 | 14.3 | 4 | 57.1 |
| 60-69 | 36 | 12 | 33.3 | 2 | 5.6 | 0 | 0 | 2 | 5.6 | 22 | 61.1 |
| 70-79 | 148 | 19 | 12.8 | 10 | 6.8 | 0 | 0 | 10 | 6.8 | 119 | 80.4 |
| 80-89 | 257 | 31 | 12.1 | 26 | 10.1 | 2 | 0.8 | 28 | 10.9 | 198 | 77.0 |
| 90-99 | 69 | 5 | 7.2 | 9 | 13.0 | 0 | 0 | 9 | 13.0 | 55 | 79.8 |
| Total | 517 | 69 | 13.3 | 48 | 9.3 | 2 | 0.4 | 50 | 9.7 | 398 | 77.0 |

**Denture status of edentulous individuals among 517 London persons aged 50-99** **Table 2**

| Age | Maxilla | | | | | | | | Mandible | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No denture | | Poor denture | | Fair denture | | Good denture | | No denture | | Poor denture | | Fair denture | | Good denture | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| 50-59 | 1 | 20.0 | 1 | 20.0 | 0 | 0 | 3 | 60.0 | 1 | 25.0 | 1 | 25.0 | 0 | 0 | 2 | 50.0 |
| 60-69 | 6 | 25.0 | 3 | 12.5 | 6 | 25.0 | 9 | 37.5 | 10 | 45.4 | 4 | 18.2 | 4 | 18.2 | 4 | 18.2 |
| 70-79 | 11 | 8.5 | 14 | 10.9 | 37 | 28.7 | 67 | 51.9 | 32 | 26.8 | 17 | 14.3 | 39 | 32.8 | 31 | 26.1 |
| 80-89 | 38 | 17.0 | 17 | 7.6 | 55 | 24.5 | 114 | 50.9 | 51 | 25.5 | 31 | 15.5 | 62 | 31.0 | 56 | 28.0 |
| 90-99 | 12 | 18.8 | 7 | 10.9 | 20 | 31.3 | 25 | 39.0 | 14 | 25.4 | 10 | 18.2 | 20 | 36.4 | 11 | 20.0 |
| Total | 68 | 15.2 | 42 | 9.4 | 118 | 26.5 | 218 | 48.9 | 108 | 27.0 | 63 | 15.8 | 125 | 31.2 | 104 | 26.0 |

None of the three homes had a fixed policy on dental treatment. However, the publicly supported Dearness Home did have limited funds to provide emergency care or to have dentures made for residents who could not afford them. Generally, residents made their own arrangements with dentists of their choice, but could, if they wished, be referred to certain dentists. Some residents continued to attend the dentists who had always treated them.

This group is not representative of all the elderly in the London area. However, the data give a general indication of their oral health. They also indicate the type of problems with which dentists in the London area may be confronted.

## Results

Table 1 shows the distribution of edentulous arches in 517 London persons aged 50-99. Over 86 per cent had at least one edentulous arch and 77 per cent had both arches edentulous. These data are consistent with findings in a Toronto study in that both Canadian groups had more edentulous arches than a comparable group in the United States.[2]

Table 2 exhibits the denture status of edentulous persons in this group. About 51 per cent of the maxillary dentures and 74 per cent of the mandibular dentures were either absent or considered less than good. The dentures were classified as good if in the examiner's opinion all of the following four conditions were considered good: fit, occlusion, function and patient satisfaction. If all of these conditions were poor, the dentures were classified as poor. All other dentures were considered fair. Many fair dentures would have been judged poor except for apparent patient satisfaction.

In the 119 partially endentulous individuals examined, 91.4 per cent of the maxillae and 90.2 per cent of the mandibles either had no prostheses or ones which were considered less than good. The same criteria as above were used to assess the partial dentures.

Table 3 shows the age of the dentures. About 79 per cent had been in service for over 10 years.

The average decayed, missing and filled permanent teeth (DMFT) are shown in Table 4. The standard error of the means is included for comparison purposes. The DMFT counts were very high, as anticipated.

**Age of dentures in individuals among 517 London persons aged 50-99** **Table 3**

| Age | Arch | Years in service | | | | | |
|---|---|---|---|---|---|---|---|
| | | 0-5 | | 6-10 | | >10 | |
| | | N | % | N | % | N | % |
| 50-59 | Max | 2 | 40.0 | 1 | 20.0 | 2 | 40.0 |
| | Mand | 1 | 33.3 | 0 | 0 | 2 | 66.7 |
| 60-69 | Max | 4 | 21.0 | 3 | 15.8 | 12 | 63.2 |
| | Mand | 4 | 30.8 | 2 | 15.4 | 7 | 53.8 |
| 70-79 | Max | 8 | 6.6 | 17 | 14.1 | 96 | 79.3 |
| | Mand | 7 | 7.4 | 12 | 12.6 | 75 | 80.0 |
| 80-89 | Max | 16 | 8.2 | 25 | 12.9 | 153 | 78.9 |
| | Mand | 14 | 9.0 | 19 | 12.2 | 123 | 78.8 |
| 90-99 | Max | 2 | 3.7 | 5 | 9.3 | 47 | 87.0 |
| | Mand | 1 | 2.2 | 3 | 6.5 | 42 | 91.3 |
| Total | | 59 | 8.4 | 87 | 12.3 | 559 | 79.3 |

**Mean decayed, missing and filled permanent teeth (DMFT) in 517 London persons aged 50-99** Table 4

| Age | Males | | | Females | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | (S.E.) | N | Mean | (S.E.) | N | Mean | (S.E.) |
| 50-59 | 3 | 26.3 | (5.67) | 4 | 28.3 | (2.84) | 7 | 27.4 | (2.65) |
| 60-69 | 17 | 26.5 | (1.77) | 19 | 28.5 | (1.38) | 36 | 27.6 | (1.11) |
| 70-79 | 42 | 29.8 | (0.69) | 106 | 30.4 | (0.40) | 148 | 30.3 | (0.35) |
| 80-89 | 54 | 29.6 | (0.69) | 203 | 30.6 | (0.16) | 257 | 30.3 | (0.26) |
| 90-99 | 17 | 31.2 | (0.56) | 52 | 30.8 | (0.39) | 69 | 30.9 | (0.32) |

**Specific number of decayed, missing filled and teeth to be extracted (DMFT-TBX) in 517 London persons aged 50-99** Table 5

| Age | Males | | | | | Females | | | | | Total | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | D | M | F | TBX | N | D | M | F | TBX | N | D | M | F | TBX |
| 50-59 | 3(1) | 2 | 72 | 5 | 0 | 4(2) | 7 | 102 | 4 | 0 | 7(3) | 9 | 174 | 9 | 0 |
| 60-69 | 17(8) | 23 | 468 | 27 | 14 | 19(6) | 6 | 491 | 44 | 1 | 36(14) | 29 | 959 | 71 | 15 |
| 70-79 | 42(11) | 10 | 1,182 | 30 | 34 | 106(18) | 26 | 3,119 | 75 | 2 | 148(29) | 36 | 4,301 | 105 | 36 |
| 80-89 | 54(17) | 16 | 1,525 | 31 | 29 | 203(42) | 41 | 5,985 | 112 | 45 | 257(59) | 57 | 7,510 | 143 | 74 |
| 90-99 | 17(4) | 6 | 501 | 3 | 20 | 52(10) | 6 | 1,553 | 37 | 7 | 69(14) | 12 | 2,054 | 40 | 27 |
| Total | 133(41) | 57 | 3,748 | 96 | 97 | 384(78) | 86 | 11,250 | 272 | 55 | 517(119) | 143 | 14,998 | 368 | 152 |

( ) = Number in group with some natural teeth present

Table 5 shows a breakdown of the DMFT-TBX components. Nearly 15,000 teeth had been lost in this group, indicative of the mass destruction caused by dental disease. One hundred and fifty-two teeth required extraction and 143 required restorations.

The mean periodontal score (Russell's Periodontal Index) of the 112 persons in the group who had a periodontal score is given in Table 6.

The tissues surrounding 362 teeth exhibited gingivitis and pocket formation. Around another 82 teeth there was advanced periodontal tissue destruction resulting in loss of function. Excluding those that required extraction because of dental caries, the periodontium of 422 teeth required surgical treatment. These findings indicate the extent of periodontal disease in these people.

The time lapse since the last dental visit is shown in Table 7. This information was obtained from medical records and by asking individuals at the time of examination. The poor state of dental health was likely due in part to the lack of regular dental care. Over 77 per cent of the group had not visited a dentist within the preceding five years.

**Mean periodontal index (Russell) of the 112 persons out of 517, aged 50-99, who had a periodontal score** Table 6

| Age | Periodontal index | | | | | |
|---|---|---|---|---|---|---|
| | Male | | Female | | Total | |
| | N | Mean | N | Mean | N | Mean (S.E.) |
| 50-59 | 1 | 5.83 | 2 | 1.04 | 3 | 2.63 (1.70) |
| 60-69 | 8 | 3.08 | 6 | 1.31 | 14 | 2.32 (0.54) |
| 70-79 | 11 | 3.77 | 18 | 2.68 | 29 | 3.09 (0.38) |
| 80-89 | 15 | 3.92 | 39 | 2.82 | 54 | 3.13 (0.31) |
| 90-99 | 3 | 1.39 | 9 | 2.76 | 12 | 2.42 (0.59) |

## Further observations

Information on the prevalence of major medical defects among the 517 persons was obtained from their medical histories which are kept in the homes. The largest number suffered from diseases of the central nervous, cardiovascular and musculoskeletal systems. Because of the long-term disabling nature of these conditions, afflicted individuals often require specialized service.

The prevalence and location of gross oral abnormalities were recorded. The greatest number was observed in the tongue (54), almost twice as many as in the lower ridge area (30).

It was amazing how some individuals had adapted to poorly fitting dentures. Some had attempted to refit their dentures using the commercially available do-it-yourself denture reliners, or by using wads of facial tissue.

Ninety-four dentures examined were in need of repair. The problems ranged from broken and missing teeth to a fractured denture, both portions of which the patient was wearing.

**Distribution of 517 London persons aged 50-99, according to last dental visit** Table 7

| Age | Months since last dental visit | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0-11 | | 12-23 | | 24-60 | | >60 | |
| | N | % | N | % | N | % | N | % |
| 50-59 | 1 | 14.3 | 0 | 0 | 2 | 28.6 | 4 | 57.1 |
| 60-69 | 6 | 16.7 | 3 | 8.3 | 5 | 13.9 | 22 | 61.1 |
| 70-79 | 15 | 10.1 | 7 | 4.7 | 16 | 10.8 | 110 | 74.3 |
| 80-89 | 23 | 8.9 | 11 | 4.3 | 17 | 6.6 | 206 | 80.2 |
| 90-99 | 2 | 2.9 | 0 | 0 | 6 | 8.7 | 61 | 88.4 |
| Total | 47 | 9.1 | 21 | 4.1 | 46 | 8.9 | 403 | 77.9 |

Another interesting point was that 176 vulcanite dentures were examined and 54 or 30.7 per cent were still functioning well.

Also observed were eight fixed maxillary appliances and six fixed mandibular appliances which were still functioning quite well.

**Summary and conclusions**

Of the 517 individuals examined only 119 (23 per cent) had some natural teeth and 398 (77 per cent) were completely edentulous.

In the group surveyed, 281 complete dentures were required to replace poor dentures and to supply dentures to persons without them. A further 243 fair dentures would have to be considered for replacement on an individual basis.

Almost without exception, all individuals in the partially edentulous group were in need of restorative, periodontal or surgical treatment. One hundred and fifty-two teeth required extraction, 143 required restorations and the supporting structures of 422 teeth required surgical treatment because of periodontal involvement.

Although this survey shows the great need for prosthetic appliances, it also demonstrates other treatment required as a result of periodontal disease, the prevalence of gross abnormalities and major medical disorders.

One need only survey elderly patients such as these to appreciate the cumulative ravages of oral diseases and the physical, psychological, social and financial problems which they create.

Results of this survey indicate that this virtually unexplored area presents a considerable problem for the future. If good oral health is considered an essential part of total health, then the former is just as important for old people as it is for the rest of the population. A program to meet the needs of the elderly can only be satisfactorily planned if sufficient data are made available. Further surveys are needed to obtain additional information.

The authors acknowledge the interest and cooperation of Mr. J. R. Hider, former administrator, McCormick Home; Mr. E. W. Chown, administrator, Dearness Home; Sister Rose Ellen, administrator, Marian Villa, their nursing staffs, and the executive of the resident council in Dearness Home.

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2 Lightman, Irwin, Thompson, G. W. and Grainger, R. M. Denture needs of a group of Toronto aged. J Canad Dent Ass 35:40, 1969.

*How Fluoridation Prevents Pollution* – Haven't you heard opponents charge that the purpose of fluoridation is to make money for the fluoride-manufacturing industry? The facts are that the manufacture of fluorides has not yet grown up to meet the increasing demands of fluoridation. Recent shortages of fluoride solutions have hit communities just starting fluoridation and some large cities which buy quantities of fluoride several times a year with outstanding contract commitments.

A published report on the source of fluorides points out as an aside that, ironically, the use of fluorides for fluoridation prevents industrial fluoride pollution.

The major source for fluoride chemicals is the phosphate fertilizer industry, point out Ervin Bellack and R. J. Baker in the *Journal of the American Waterworks Association*. Fluorides are a by-product of the phosphate recovered from phosphate rock which contains about 4 per cent fluorine.

Causes of recent fluoride shortages were a cutback in fertilizer production and the fact that only a limited number of fertilizer manufacturers produce fluorides as a by-product.

The authors point out that when fluorides are not recovered in the processing of phosphate rock, the fluorides have often been allowed to escape into the air and into streams that cause pollution. Now the water containing the run-off fluoride is treated to collect the fluoride for use in fluoridation.

The new awareness of the seriousness of pollution is seen by Bellack and Baker as a positive force in increasing the production of fluorides instead of losing the fluorides into the air and water.

"The increased demand for fluoride compounds, plus the pressure exerted by anti-pollution agencies, should encourage more phosphate rock processers to install or enlarge recovery facilities and thus ensure ample availability of fluorides in the future."

Bellack is a fluoridation chemist for the US Public Health Service's Bureau of Water Hygiene and Baker is technical director of Wallace & Tiernan, a manufacturer of fluoridation equipment. – Fluoridation Reporter (American Dental Association)

# Mr. Basford's bill

Back in 1969, the Economic Council of Canada recommended a revised approach to anti-combines or competition policy. Its proposals had the objective "of furthering the interest of the Canadian consumer in an efficient working economy."

The federal government has acted on the proposals and produced Bill C-256, a massive, complex piece of legislation called the Competition Act that appears to go much further than anything the Economic Council contemplated.

The bill is a potent document. Under the pretext of relaxing the criminal law, it establishes a civil tribunal with power to police, regulate and veto many, if not most, of the day-to-day business practices of Canadians. Under the pretext of judging business behaviour by its economic effects, it tries to impose a detailed pattern based on a highly theoretical view of the unlimited virtue of competition.

The proposed legislation requires as much attention from the professions as the white paper on taxation so deservedly received. Under it, anti-combine policy is extended beyond goods-producing and goods-distributing activities to include personal services such as those rendered by dentists. Fee schedules developed by the profession, that by inference establish an agreement among practitioners to charge set fees, would be prohibited. The bill also seems to rule out any distribution of relative value fee formulae that cite actual dollar values. And the presence of lay representatives on a dental board would not make a fee schedule legal if such a schedule were illegal without lay representatives on the board.

Apparently excluded from the provisions of the act (though even this is not entirely clear) are syndicates, such as the Quebec Dental Surgeons Association, which are authorized under federal or provincial legislation to engage in collective bargaining. To gain similar exemption, corporate members would have to seek special legislation in their respective provinces.

But these are secondary aspects compared to the main thrust of the act which seems to suggest that the fact of getting together is in itself an offence regardless of whether there is or isn't undue restraint on competition. The proposed tribunal then decides whether the result would be significantly less competition than would have otherwise existed or would likely exist. This obviously gives the tribunal enormous powers and there is no guarantee that these will not be capriciously used.

Under existing law, the government must prove guilt. But the proposed legislation, by one device or another, presumes guilt until the parties involved prove innocence. The shift in onus is brought about, basically, by prohibiting everything—with exemptions requiring those concerned to prove why they are not doing wrong. The argument against such an approach boils down to saying that in a free society only things that are demonstrably wrong should be punished; if that is not to be the way things are done, then the management of our affairs is delivered very directly into the hands of government.

For this reason alone it would be incredible if the legislation passes Parliament in its present form. Fortunately, there is still time to demonstrate how the effects of the bill depart from its declared intentions. Out of such reasonable discussion there may spring a much simpler bill suitable for the 1970s rather than the 1870s.

# Le projet de loi de M. Basford

Dès 1969 le Conseil économique du Canada recommandait une révision de sa politique anti-cartel et de la loi qui régit la compétition. Ces propositions avaient comme objectif "le bien du consommateur canadien et ce au sein d'une économie qui pourrait fonctionner de façon efficace".

Le gouvernement fédéral récemment a pris des décisions quant à ces propositions et a institué le projet de loi C-256, un projet imposant et complexe appelé la loi sur la compétition et qui paraît aller beaucoup plus loin que tout ce que le Conseil économique avait souhaité.

Ce projet de loi est un document au style énergique. Sous prétexte d'être plus souple à l'endroit au droit criminel, il établit un tribunal civil chargé de surveiller de près, de régler et de donner son véto à la plupart sinon à toutes les opérations commerciales accomplies de façon quotidienne par des Canadiens. Sous prétexte de juger certaines affaires par ses effets économiques, il essaie d'imposer un modèle détaillé, basé sur une perspective toute théorique des vertus illimitées de la compétition.

Ce projet exige de la part des membres des professions une attention aussi grande que celle qu'ils dévouèrent au livre blanc sur l'impôt. Sous cette nouvelle loi, la politique anti-cartel déborde les activités reliées à la production et à la distribution des biens; elle embrasse aussi les services personnels, tels ceux qui sont rendus par un dentiste. Les tarifs d'honoraires, fixés par les membres de la profession seraient ainsi interdits, car il s'agirait selon cette loi d'un accord établissant une entente entre praticiens. Le projet semble aussi bannir toute distribution de formules basées sur la valeur relative et qui indiquerait des chiffres concrets en dollar. De plus, la présence de représentants non-professionnels au sein d'un bureau dentaire provincial ne rendrait pas ce tarif d'honoraires légal si un tel tarif était illégal sans ces représentants non-professionnels au bureau.

Il semble (bien que ceci ne soit pas très clair) que les syndicats tels que l'Association des Chirurgiens-Dentistes du Québec qui ont eux l'autorisation du gouvernement fédéral et du gouvernement provincial de signer des ententes collectives, ne tombent pas sous le coup de la loi. Pour avoir droit aux mêmes avantages, les membres corporatifs devraient donc demander une législation spéciale dans leurs provinces respectives.

Mais ces aspects sont secondaires comparés à l'orientation globale de la loi, qui semble suggérer que toute tentative d'union entre membres d'une même profession est une infraction en soi, sans égard au fait qu'il y ait ou non une restriction indue de la compétition. Le tribunal qui nous est proposé déciderait ensuite si le resultat obtenu atténuerait davantage la compétition que celui qui aurait autrement existé ou aurait des chances d'exister. Ceci donne évidemment un pouvoir énorme à ce tribunal et il n'y a là aucune garantie que ces pouvoirs ne seront pas utilisés selon le caprice de ses membres.

Sous la loi actuelle, le gouvernement doit faire la preuve de la culpabilité. Mais la nouvelle législation, d'une façon ou d'une autre, présume d'abord la culpabilité jusqu'à ce que les parties en présence aient prouvé leur innocence. Ce transfert de responsabilité est évident puisqu'au départ le projet interdit tout—et seuls sont dispensés ceux qui peuvent prouver qu'ils ne causent aucun tort. L'argument que l'on peut apporter devant une telle approche consiste à dire que dans une société libre seuls sont punissables les actes dont l'injustice peut être prouvée; si enfin les choses ne se font pas de cette façon, la direction de nos affaires revient directement entre les mains du gouvernement.

Pour cette seule raison, il semble impensable que le projet de loi soit accepté sous sa forme actuelle. Heureusement, il nous reste assez de temps pour démontrer que les effets de ce projet de loi dépassent et de loin les intentions qui ont engendré sa création. Une telle discussion pourrait donc donner naissance à un projet de loi plus simple et mieux adapté aux années 1970 plutôt qu'aux années 1870.

# Letters/Courrier

*The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

*Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association Dentaire Canadienne. Vous êtes invités à participer à cette section du Journal.*

### Insured oral surgery benefits

On reading the letters in the September issue, I wish to support Doctor Howard Phillips by further commenting that people have already forgotten why the Ontario Health Services Insurance Plan list of insured dental services originated. It was drawn up to correct the discrimination that existed when the government brought in the health insurance scheme. The government of Ontario was going to pay physicians for medical services that included this list. So, in order to correct this an OHSIP list was drawn up to apply to dentists.

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### Cancer detection

Toluidine blue has been a controversial agent for oral cancer detection ever since it was introduced in the early sixties. The fact that it does not stain some carcinoma in situ lesions is its greatest drawback, as pointed out by Doctors Rosen, Cornish and Edelson ("Detection of Early Oral Cancer by Toluidine Blue") in the September issue. Whether Strong et al, using 3 per cent rather than one per cent toluidine blue, were more successful in early detection would be worth knowing.

Despite the false positives, the toluidine blue test is of some benefit because other factors must also be weighed when evaluating the results. Important in this context is the length of time a lesion has been present. Aphthous and traumatic ulcers, for example, which stain positively would not be significant. As a rule all lesions which persist longer than three weeks should be biopsied or first subjected to a cytological smear.

Moreover, since oral carcinoma does not necessarily start as a white lesion or ulcer the toluidine blue test used routinely in clinics screening large numbers of patients may disclose early cancer which would otherwise be missed.

One use for the test could be to have dental students stain the mucosa in every patient's mouth. This would motivate them into the habit of looking for the minutest change in colour, tone, texture and anatomy of all oral tissues.

As the authors point out, the dye also helps in selecting a biopsy site. It may, for instance, show a discrete area within a relatively large leucoplakic patch, signalling a breakdown which cannot be seen microscopically without the dye.

More than anything else, early detection of oral cancer would benefit if dental students were required to purchase a biopsy punch and every practitioner were to have one in his office.

*D. S. Moore, DDS, MRCD (C)*
*Professor and chairman*
*Department of Oral Medicine*
*University of Western Ontario*
*London, Ont*

### Deep carious lesions

The article, "Conservative Treatment of Deep Carious Lesions," by Doctors Jordan and Suzuki, in the September issue, is excellent – direct and to the point, well documented, and very timely. What dentist hasn't debated many times whether to excavate completely or try a more conservative means of treatment in cases of deep caries?

The authors give us a concise analysis of the situation backed by sufficient clinical cases to show conclusively that the conservative treatment is the better one. The fact that further treatment was necessary in some cases, because of too little excavation originally, may explain why others have had failures using this method and have swung back to drastic excavation with exposure, capping and "crossing of fingers."

If conservative means will remineralize dentine, why, as the article states, should we subject the pulp to much more chance of damage, often resulting in devitalization?

*D. C. Eaton, DDS*
*1584 Robie St*
*Halifax, NS*

### Dental fitness of dental students

I firmly believe that the time has come for dental schools and dentists to examine themselves. Why is it that nursing schools and many other institutions require a certificate of dental health before accepting an applicant, and why is a similar requirement not exacted from applicants to our dental schools?

Dentists expect better from their own patients – six-monthly checkups after all treatment is terminated. The same requirement should apply to us as well.

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*Montreal 247, Que*

### Scars of restorative dentistry

The statement that amalgam restorations are the "bread and butter" of dentistry has largely obscured the significance of this procedure in the minds of dentists and the public. With today's emphasis on prevention of pathological conditions, we must reexamine our mode of explaining this procedure to our patients.

Most members of the public realize that removal of food debris eliminates the need for many fillings. However, many do not know that the streptococci which are thought to participate in the caries process are also involved in throat infections, impetigo, bacterial endocarditis, urinary tract infections and rheumatic fever. Caries must therefore be recognized as a serious pathological lesion of the oral cavity.

Pathological lesions are customarily handled in one of two ways: medically or surgically. In the surgical approach, an incision is made, the lesion is cut out, and the wound is closed, eventually resulting in the formation of scar tissue. The protocol in restorative dentistry is very similar. An incision is made with a bur, followed by extirpation of the

carious material and finally the wound is closed with amalgam or another restorative material. Thus, amalgam is analogous to a scar which is a by-product of the removal of a pathological lesion.

The representation of fillings as scars of the mouth will stimulate greater public interest in preventive measures advocated by the profession.

*Lorne Chapnick*
*25 Lois Ave*
*Toronto 19, Ont*

**Oral tuberculosis**

The article "Oral Tuberculosis: Its Similarity to Oral Carcinoma" (October issue) points out once again why this disease deserves to be labelled the "great imitator."

Although the author, P. Cleaton-Jones, initially found the lesion to bear the clinical appearance of a typical malignant ulcer, biopsy and cultures proved otherwise.

With the incidence of tuberculosis by no means eliminated, this disease must be considered in the differential diagnosis of any long-standing oral ulcer.

*F. I. Muroff, DDS, FRCD (C)*
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*Montreal 107, Que*

**Vancouver Island Cleft Palate Group**

Journal readers may be interested in the following details about the Vancouver Island Cleft Palate Group. Our group includes a public health officer, speech therapists, a social worker, a paediatrician, three plastic surgeons, an otolaryngologist, a radiologist, an orthodontist and a general dentist.

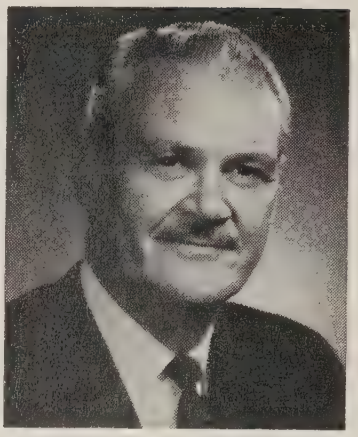
Patients requiring rehabilitation are seen from birth to any age. Speech therapists have helped many of our more senior patients to master the obturator.

Dental treatment is carried out at the Queen Alexandra Solarium in Victoria. Members of the dental staff are paid on an hourly basis for their services. It has been difficult to impose a scale of fees in relation to the families' income. Instead, our social worker uses the funds placed at her disposal by Kiwanis and Kinsmen Clubs to ensure smooth working of the treatment plan.

Approximately 150 cases are reviewed at six month intervals with appropriate joint discussion between the disciplines concerned.

*A. R. Proctor, BDS*
*405-1900 Richmond Ave*
*Victoria, BC*

# EXECUTIVE DIRECTOR'S PAGE



**W. G. McIntosh, DDS**

The CDA has again approached Ottawa to seek changes in the tax reform bill, tabled in the House of Commons last June.

We were disappointed then because Finance Minister Edgar Benson did not follow as many of our recommendations outlined in CDA's brief on the white paper on tax reform as we would have liked.

Following the tabling of Bill C-259, the Standing Committee of the Senate held further hearings and invited additional comments on the new proposals. On November 4, the CDA presented a supplemental brief to the committee reiterating its earlier suggestions.

You may remember that we sent representatives to the Senate Standing Committee on Banking, Trade and Commerce and to the Commons Standing Committee on Finance, Trade and Economic Affairs before the new proposals were formulated.

Our latest brief reminds the Senate committee of all 38 recommendations we originally made. In particular, we emphasized the substantial difficulties dentists will have to face if they are forced to calculate income on the accrual basis, rather than on the existing cash basis.

Also singled out for further elaboration were new government proposals that would make it difficult for dentists to set up corporations to acquire buildings, equipment and management and accounting services.

Because of the wide interest in the eventual legislation covering the accrual basis of accounting, I've highlighted some points from this part of our November brief.

The proposed legislation requires that a professional include "every amount that becomes receivable by him in the year in respect of property sold or services rendered in the course of business." An amount is deemed to have become receivable "on the

day that is the earliest of" (1) the day the account is billed, (2) the day the patient would have been billed had there been no "undue delay" in billing, and (3) the day the professional was paid for the services.

The proposed law allows the dentist and other professionals to exclude amounts due in respect of work in progress. This is a welcome rejection of the white paper proposal that would have taxed work in progress.

But the CDA still believes this part-accrual basis is unfair because:

- It discriminates against the dentist, forcing him to pay tax on money he has not received. Most Canadians are employees and are only required to pay tax on money received during a taxation year. This is contrary to the government's expressed aim of equity among taxpayers. (It's interesting to note that tax officials recognize that receivables and work in progress are not the same as cash, because they're not willing to accept a transfer of these assets in payment of tax arrears.)
- Businessmen who pay tax on the accrual basis usually have inventories, which can be pledged to the banks for security for loans to pay their income tax. But dentists can't pledge their work in progress as loan security.
- Newly licensed dentists, who have a tough enough time to raise money to establish a practice, would be stung in having to pay tax on money they had not received.
- Dentists will suffer when they try to estimate a reasonable value for doubtful accounts and bad debts, especially where services have been provided on a compassionate basis. Also, some dentists are involved with health plans where their fees are pro-rated. They don't always know at what percentage their accounts receivable from these plans will be paid.
- Dentists naturally would be loath to provide services to patients who could not pay for a long time. Dentists would tend to reduce their accounts receivable to a minimum and handle the vast majority of their patients on a cash basis. Restriction of credit would deny dental services to patients until they had enough cash to pay immediately.

Also unfair is the government's intention to determine what is "undue delay" in billing. A tax assessor —a layman—should have no right to examine dental files and records to determine what is undue delay. This is an unwarranted and unreasonable interference in the relationship between dentist and patient.

For these reasons, the Association is again urging Ottawa to leave the present system of accounting as it is.

To all readers, my compliments of the season and every good wish for 1972.

*Fluoridation: A Question of Quality* – Fluoride is not the only trace element which is poison in quantity and beneficial in smaller amounts. In a report on fluoridation, F. H. Quimby, PhD, of the US Library of Congress cites the example of manganese. Manganese at 3,000 parts per million parts of water will kill a bean plant, 1,000ppm will cause disease, 200ppm is required for the health of the plant, 30ppm is not sufficient and will cause disease, and complete absence of manganese will kill a bean plant.

# Dialogue

*The final year of the undergraduate program at the Dental College of the University of Saskatchewan is a student internship involving advanced experience in the dental college clinic, in the dental department of a teaching hospital and in public health units in Saskatchewan. The university says that an undergraduate internship of this nature provides much broader experience for Saskatchewan graduates than is usually available before dental students graduate and become licensed to practise dentistry. For further views on this question, the Journal invited opinions from a general practitioner, a dental student and the dean of a dental school.*

## Mandatory internship wins qualified approval

A dental program which has an undergraduate internship as one of its requirements warrants qualified approval. However, one should first establish that its prime purpose is to provide the student with a better balanced curriculum and more well-rounded education than is now available to him. Such an internship should not clash with the university's prime responsibility which is to graduate well-educated men and women who are thoroughly trained and fully aware of their professional and social responsibilities.

A mandatory internship must not degenerate into a vehicle for the delivery of dental services in production-oriented clinics. Such a development could readily lead to the establishment of quotas and defeat one of the major advantages of an internship program—the elimination of clinical requirements which have been the bane of every dental student since their introduction. Internship should be part of a total dental curriculum which provides students with the opportunity for a cultural and scientific education and equips them to accept their scientific and social responsibilities, thereby enabling them to serve their communities well.

Such an internship should not simply be added to an existing curriculum. Instead, the entire teaching program should be re-structured. Some thought might even be given to having a student graduate from a university with his dental degree (as in most medical schools); the requirement and structure of the subsequent internship might then become the responsibility of a provincial licensing body. This would, of course, require cooperation on a national level from the various examining boards.

One major benefit of a dental internship is that it relieves the university of much of its present responsibility for clinical teaching. More attention could then be directed to areas of instruction which are becoming increasingly important as science progresses. As a consequence I can visualize closer integration between the teaching of basic sciences and instruction in oral

medicine, radiology and oral diagnosis. This would result in more emphasis on preventive and interceptive treatment, with service provided in a more responsive social climate. The student would relate more effectively to his patients, regarding them as individual human beings rather than people who have problems with particular teeth.

A dental student exposed to such a curriculum prior to internship is better able to think in terms of complete dental care for his patient. A natural evolution is the development and demonstration of more efficient delivery of dental service. Individual students could proceed at their own pace—under circumstances that are close to ideal. And having been properly motivated, they would develop a far greater potential than is presently possible.

*James Sim, DDS*
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*St. Catharines, Ont*

## Internships benefit patients and practitioners

Compulsory dental internship involves a specified period of supervised practice after graduation in a private office, clinic or hospital. The objective is to provide the new graduate with clinical experience that cannot otherwise be acquired, as an undergraduate, due to the lack of time, staff or facilities. Immediately, several questions come to mind.

Compulsory, in this particular case, should suggest that a majority of students would not only benefit, but really need this continuing education. It benefits all of us to involve ourselves continually in the educational process, but the objective in undergraduate dental education is to provide the foundation upon which the future dental practitioner should build. The compulsory program proposed implies that, if a new graduate does not fulfil this internship, he will not have this essential educational foundation and consequently will not be qualified to practise dentistry.

Appropriate supervision in this program is of prime importance. A new graduate could be exposed to influences which would result in a gross lowering of clinical and ethical standards. This would be quite unacceptable. Since the internship would be primarily educational, educational institutions should play a major role in the choice of this supervision.

The circumstances under which the internship would be completed are highly significant. In 1972, in Ontario alone, approximately 165 dentists will graduate. The placement of these graduates in a productive and educational setting would be an accomplishment of note. The medical profession's utilization of hospitals for medical graduate internship could be paralleled by the utilization of group dental practices or clinics which, at this time, are relatively rare. Hospitals have been suggested for this purpose, which I approve, but there are few good dental departments in hospitals.

The extra time involved is, to say the least, not appealing to me. At the University of Western Ontario we have completed on graduation a minimum of six years of university education and more than 50 per cent have completed seven years. This situation is typical of all Canadian dental schools. Before approximately one more year of internship is added to this very lengthy period, it must be considered a necessity. Some educators feel that a reduction in the time required for undergraduate education is in order, such as year-round utilization of facilities and streamlining of predental instruction. If this were achieved, an internship, from the standpoint of extra training time, would not be as objectionable.

The supervision, facilities and time involved are problems still to be solved but, most important, what would a new graduate gain from this program? A wealth of new techniques which would enable him to perform a specified procedure more quickly and with superior results? Perhaps. I strongly believe that an elusive (to the dental undergraduate, at least) quality termed "clinical judgement" is what is needed so badly on graduation. This is illustrated by an experience that I had very recently. I had the opportunity to debate with two clinical instructors the overall treatment of choice for one of my patients. I had outlined the most ideal treatment plan, but the instructors were more concerned with the clinical results and patient's reaction if any of my heroic dentistry were to fail. I had to make the final decision, but now had a much better understanding of my position. I was able to take a broader view, experience a "feeling" for the patient and perceive a problem not previously apparent to me. This is one of the most important things that I feel could be gained from a good dental internship: to formulate a technically and biologically acceptable treatment plan and carry it out is difficult enough, but to tailor it to the patient's needs requires judgement acquired only by personal experience and from the experience of others.

Another positive aspect of the dental internship, if spent in a hospital environment, is the acquisition of experience and knowledge in areas such as psychiatry, social work and medicine to help us better understand our patient as a person with problems other than dental ones. We would also benefit from working as a health science team and, hopefully, interprofessional relationships would improve to the ultimate advantage of our patients and our profession.

In conclusion, as long as I shall not *primarily* be providing inexpensive dental care for the hospital staff, a source of income for established practitioners, or an extraction service in the far north, I would be in favour of compulsory dental internship. If I voluntarily elect to do any of the above, that is my own concern. If, however, the internship is compulsory, it must first be educational, providing me with pertinent experience, a "feeling" for my patients, and a desire to provide optimal dental care.

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*London 75, Ont*

## Internships an integral part of undergraduate training

It is usual to consider an internship as a post-certification period of clinical training, adequately supervised and beyond the regular undergraduate university

program within a teaching hospital or similar health centre. Further, most internships have two components —service and education. With the above definition in mind, I would like to comment on the question of a compulsory dental internship, limiting my remarks to the educational aspects.

Currently, dental graduates are expected to assume full professional responsibilities the day after graduation. This differs from the pattern in medicine or law, where recent graduates are required to undertake additional training prior to establishing a practice. The introduction of a dental internship therefore would no longer require the student to be "sharpened to a point" within a university educational setting, but would provide an opportunity for students to develop clinical skills in an environment which simulates the conditions of practice more closely than a university.

I therefore approve in principle the concept of the dental internship as an integral part of a dental student's education. However, I believe it is undesirable to consider the dental internship as a period of training beyond the regular undergraduate university program, adding still another year to the student's preparation for practice. I would rather link the question of the compulsory internship with a reduction in the training period by at least one year.

The Faculty of Dentistry at the University of Toronto has recently proposed the decentralization of clinical training through the development of satellite clinical teaching units. The student's last year of clinical training would be primarily delegated to such centres. I consider this arrangement an ideal internship. The student would receive the basic scientific and clinical preparation at university and would then be permitted to obtain additional clinical experience in an environment which more closely resembles the conditions of the dental office.

The concept of an internship can be meaningful and effective only if the student's training during this period is adequately supervised by experienced staff. The ideal arena for an internship would be a teaching hospital or a health care centre where a student would work in an environment of total patient care. Currently, facilities and staff are limited, and would have to be increased before internships could be introduced.

Several proposals made during the past few years relate to an internship as a service year whereby recent graduates would be required to contribute a year's service in the province of graduation. I consider a purely service internship as an arrangement that should be worked out between the government and the recent graduate and as such is outside the framework of a supervised educational experience.

In summary, I believe that dental internships with an educational component would be a valuable experience for students. Such internships should occur in teaching hospitals or similar health centres under effective supervision of qualified staff. An internship should not be limited to a service experience, nor extend the time period of education beyond the current duration, but should be an integral part of a dental student's continuing education.

*Gordon Nikiforuk, DDS*
*Dean, Faculty of Dentistry*
*University of Toronto*
*124 Edward St*
*Toronto 101, Ont*

# Income tax

## Federal income tax returns by dentists

The Department of National Revenue has reviewed the following instructions to assist dentists in the preparation of their annual income tax returns.

### Income

There should be maintained by every member of the dental profession an accurate record of income received from his profession (fees) and from other sources (investments, real estate rentals, etc.). The record should be clear and capable of being rapidly checked against the return filed. Records should be maintained in books kept for the purpose which should be retained until written permission for their disposal is obtained from the Minister of National Revenue.

### Expenses

Under the heading of expenses the following accounts should be maintained and records kept available for checking purposes in support of charges made:

(a) Dental and like supplies.

(b) Office help, nurse, bookkeeper, laundry and malpractice insurance premiums:

Amounts of salaries and wages paid should be reported on Forms T4-T4A Summary and T4 Supplementary, obtainable from your District Taxation Office. (The Income Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount, if paid, is to be added back to income of the payer.)

(c) Telephone expenses incurred in connection with professional practice.

(d) Assistant's fees:

The names and addresses of the assistants to whom fees are paid, and amounts paid, should be furnished on or before the last day of February in each year on Forms T4-T4A Summary and T4A Supplementary. (Do not confuse with individual return of income, Form T1, to be filed on or before April 30 in each year.)

(e) Rentals paid:

The name and address of the owner (preferably) or agent of the rented premises should be furnished. [See (g).] Non-resident tax must be withheld at source from rent paid to non-resident owners of rented premises.

(f) Postage and stationery.

(g) Proportional expenses of dentists practising from their residences:

1. Owned by the dentist: Where a dentist practises from a house he owns and as well resides in, a proportionate allowance of house expenses will be given for the laboratory, office and waiting room space, on the basis that this space bears to the total space of the residence. The charges cover taxes, light, heat, insurance, repairs, and interest on mortgage. (Name and address of mortgagee to be stated.) Note: For depreciation see item 2 (m).

2. Rented by the dentist: Rent and other house expenses paid by the dentist will be apportioned in the same manner as that described above.

(h) Sundry expenses (not otherwise classified):

The expenses charged to this account should be capable of analysis and supported by records.

Claims for charitable donations will be allowed up to 10 per cent of net income from all sources upon submission of receipts to your District Taxation Office. Charitable donations made through professional practice should be excluded from professional expenses and claimed as a deduction from income generally, along with any donations made otherwise.

The annual dues paid to governing bodies under which authority to practise is issued and membership association fees, to be recorded on the return, will be admitted as a charge.

For 1965 and subsequent years, tuition fees paid to an educational institution in Canada for a post-graduate course are an allowable deduction, but no deduction may be made in respect of travelling or living expenses incurred in connection with the taking of such a course.

(i) Interest paid on borrowed money may be charged against professional income if the borrowing was for professional purposes. If the money was borrowed to acquire investments, the interest is chargeable against the investment income. If the loan was for personal purposes, no deduction from income will be allowed for the interest paid thereon.

(j) Business tax will be allowed as an expense but income taxes will not be allowed.

(k) Automobile expenses:

Taxi fares and automobile expenses incurred in earning the income from the dental practice will be allowed when the dentist must visit the patients at their homes. The cost of transportation between the dentist's home and his office, however, is not an allowable deduction from income. (The manner of calculating claims for automobile expenses is described in Information Bulletin No 28 issued by the Taxation Division of the Department of National Revenue and reprinted in part on pages 209-210 of the March 1965 issue of the Journal.)

(l) Social club dues are allowable as deductions from income only when, and to the extent that, they are paid for business purposes, and any dentist claiming them may be required to prove, to the satisfaction of the taxation authorities that the amount claimed was expended wholly and directly for the purpose of increasing his business income. "Social club dues" means annual or monthly membership dues or fees; it does not include an initiation or entrance fee or the cost of a share of a club's capital stock, nor does it include charges for food and drink, living accommodation, fees for the introduction of guests and the like.

(m) Capital cost allowance (depreciation):

The method of computing capital cost allowance for tax purposes is the same as that used last year.

For further information on this subject you may refer to the Regulations or you may consult your District Taxation Office.

**Convention expenses**

Convention expenses are allowable to an individual practising a profession, but the allowance is restricted to the expense of attending no more than two conventions in a taxation year. The taxpayer's attendance at the convention must have been for professional reasons. The expenses to be allowed must be reasonable and the taxpayer should show:

1. The dates on or between which the convention was held, and the location thereof;

2. The number of days he was present at the convention, supported by a certificate of attendance from the sponsoring organization; and

3. The expenses incurred, segregating (a) transportation expenses, (b) meals, and (c) hotel expenses, for which at least vouchers should be obtained and kept available for inspection.

All expenses of a personal nature including those attributable to the fact that the taxpayer's wife (or husband) accompanied him to the convention must be excluded from the foregoing.

No expenses for attending a convention are allowable as a deduction from salary income, since such a deduction is prohibited by Section 5 of the Act.

The Department of National Revenue has expressed the view that, ordinarily, the business purpose of a convention sponsored by a Canadian business or professional organization does not require that it be held outside Canada, where the organization is national in character, or outside a particular province, municipality or other area in Canada where the activities of the organization are limited in scope to such an area. Consequently, expenses incurred in attending a convention sponsored by a Canadian organization that is held outside those geographical limits will normally be viewed as not deductible in computing income. For this purpose, a convention held during an ocean cruise will be viewed as being held outside Canada.

**Registered retirement savings plans**

The amount that is deductible in respect of contributions to a retirement savings plan is limited:

(a) In the case of an employee receiving a salary who is covered by a registered pension fund or plan (whether or not he contributes to the pension fund) to $1,500 or 20 per cent of his earned income, minus the amount, if any, he is allowed to deduct from income for his contribution to the pension fund.

(b) In other cases, to the lesser of $2,500 or 20 per cent of his earned income. "Earned income" usually consists of income received as salary (before any pension deductions) or income from carrying on a business or profession, plus net rental income.

The amounts deductible are those paid in 1971 and within 60 days after the end of the year. A payment made in January or February 1971 cannot be claimed in 1971 if it could have been deducted in 1970.

Individuals inquiring whether a proposed or existing plan is acceptable should usually obtain that information from the corporation offering the plan as it will normally be the corporation's responsibility to explain the plan and get it registered.

Dentists who have applied for membership in the Canadian Dental Association Retirement Savings Plan prior to February 29, 1972 may be assured that their names are registered as participants in a registered retirement savings plan and that their contributions are deductible for the taxation year 1971. The closing date for applications and contributions applicable to 1971 is February 29, 1972.

A personal statement of account and a receipt showing the amount of contributions will be mailed in March 1972 to each participant to support claims made for deductions in 1971 income tax returns.

Applications for membership in CDARSP received after February 29, 1972 will entitle participants to tax deferment for 1972.

### Payment of tax

Individuals whose income is more than 25 per cent derived from sources other than salary or wages are required to pay the tax for each year by quarterly instalments during such year on the following dates, March 31, June 30, September 30 and December 31.

### Dentists under salary contract

The Income Tax Act provides for the deduction of certain expenses from salary income.

The allowable expenses include travelling expenses, annual professional membership dues, office rent, salary to an assistant or substitute and supplies consumed directly in the performance of the duties of employment.

Certain conditions are attached to the allowance of the expenses. Without trying to recite the exact provisions of the law the main points are:

(a) That the expenses must have been incurred in the performance of the duties of the office for employment.

(b) That the employee is required under the contract of employment to pay the expenses.

(c) To claim travelling expenses the employee must be ordinarily required to carry on the duties of his employment away from his employer's place of business. Travelling between the dentist's home and his office is not included.

### Income from a partnership

Additional expenses incurred by a partner, but not charged to the partnership, may be claimed as a deduction from the partner's share of income. However, the partner must be in a position to substantiate these expenses, to show why they were not charged to the partnership and that they were necessarily laid out to earn partnership income.

### Provincial taxes on individuals

Each of the 10 provinces imposes its own tax on the income earned by an individual in that province. With the exception of the province of Quebec, no separate provincial income tax return need be filed by an individual whose income is subject to provincial tax.

### Medical expenses

For 1969 and subsequent taxation years, a taxpayer in computing taxable income may not include in medical expenses any expense paid by or on behalf of the taxpayer or his legal representative for which the taxpayer or such representative has been reimbursed or is entitled to be reimbursed pursuant to a medical care insurance plan established pursuant to an act of the legislature of a province that satisfies the criteria set forth in subsection (1) of Section 4 of the Medical Care Act.

**MEMO FROM THE CDA TAXATION COMMITTEE**

Under the proposed legislation whereby dentists will report income under the accrual basis of accounting they will be required to pay tax on the *increase* in their accounts receivable at the end of the 1972 fiscal year over the total of these accounts at the end of their 1971 fiscal year.

Accordingly, dentists may be advised to be not too assiduous in collecting these accounts before the end of their 1971 fiscal year if they expect for any reason an increase in their accounts receivable during the 1972 fiscal year as might occur in any expansion of their practice. Any bad debts may be written off at a later date or more opportune time.

# Dentistry in the news

## The Association

### Miss Kirker becomes secretary of CDA councils

Miss Kay Kirker of Toronto has been appointed Executive Secretary to CDA councils, W. G. McIntosh, CDA executive director, has announced.

In her new capacity she will assist the executive director in co-ordinating staff services for all councils and committees except the Communications and Headquarters Property Councils and the Convention Committee.

Miss Kirker has been on the CDA staff as administrator of the Dental Aptitude Test Program since 1966 and additionally as secretary to the Council on Education since 1968.

Succeeding Miss Kirker as administrator of the Dental Aptitude Test Program is Miss Beverley Nicholl of Toronto. Miss Nicholl was previously employed by the Ontario Institute for Studies in Education where she gained extensive experience in various educational testing programs.

## Canada and the Provinces

### New dental service planned for Yukon and NWT

K. W. Davey, chairman of the Department of Paedodontics at the University of Toronto, has been named director of a new program aimed at providing dental care to Indians and Eskimos of the Yukon and Northwest Territories.

Immediate aim of the project, which is co-sponsored by the Department of National Health and Welfare and Toronto's Faculty of Dentistry, is to train a group of Indian and Eskimo auxiliaries as dental therapists. On completion of the course, the therapists would be supervised directly by a field dental officer. Each officer would be responsible for six therapists.

The teams are expected to serve as a new prototype for the delivery of dental services to the widely dispersed residents of the Northwest Territories and Yukon.

Assisting Doctor Davey is K. C. Titley, also of Toronto.

### An endorsement from the dentists

*The Canadian Dental Association's recent decision to recognize effective therapeutic dentifrices drew the following comment in the October 2* Ottawa Journal:

"The medical professions are traditionally reluctant to approve medicines by brand name. Doctors and dentists will recommend them privately to the patients, but public endorsement of pills, rubs and toothpastes has for the most part been left to the actors, TV personalities and sports heroes.

"Yet there seems good sense in the endorsement by the Canadian Dental Association this week of two fluoride-containing toothpastes. If a group of professionals has the results of independent tests to prove one product's superiority, it does a public service by making its views widely known. As for those products not approved – if the manufacturers of them feel they've been given a raw deal, presumably they have the remedy in their own laboratories or will quickly find it."

## CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on October 31:

*Fixed Income Fund* $12.383;
*Common Stock Fund* $21.673.

Total assets (market value) of the plan were $10,100,430.70.

The following portfolio sale occurred during the preceding month; 21,600 shares Western Broadcasting Co. Ltd.

February 29, 1972, is the final date for contributions to the CDA Retirement Savings Plan for the 1971 taxation year. Money received after that date must be credited to 1972. Readers are urged to send their contributions early and mail them direct to Canadian Dental Service Plans Inc, 230 St. George St, Toronto 180, Ont.

## International Items

### ADA adopts national health guidelines; directs survey on licensure reciprocity

The American Dental Association has adopted as policy major new guidelines on national health programs.

This action, coupled with a decision to survey the entire membership of the ADA on reciprocity of licensure, was a highlight of the ADA annual session in Atlantic City, last October 10-14.

The new guidelines, termed "one of the most important documents in modern dentistry," are prefaced by a "principle" which states: "in the consideration of a national health program, the dental profession should take an active position in the design and support of a program that includes a dental program that serves the needs of all people of this nation. The dental profession continues to be in opposition to any national health program that uses public funds to provide health care for persons who are financially able to pay for health services themselves. This principle governs all provisions and recommendations of the American Dental Association with respect to national health programs."

### Doctor Monheim dies, noted dental scientist

Leonard Monheim of Pittsburgh, an internationally known dental scientist, educator and lecturer, died October 18.

Doctor Monheim was professor and chairman of the Department of Anaesthesiology and professor of pharmacology at the University of Pittsburgh School of Dental Medicine. He was also professor of anaesthesiology at the university's School of Medicine.

## Dental Organizations

### Hygienists association favours expanded duties

Canada's dental hygienists have come out in favour of a section in the Wells Committee report which would expand the duties a hygienist can perform.

A policy statement released by the Canadian Dental Hygienists' Association during its annual meeting in Ottawa last October says the group agrees with a proposal that would allow dental hygienists with requisite training to apply rubber dam; place sedative dressings; take impressions for study casts; repair dentures; place and remove matrix bands; place orthodontic bands; prepare cavities; and place and finish temporary cement, amalgam, silicate or plastic restorations.

But the CDHA opposes any serial listing of duties in provincial dental acts. Instead, it prefers that these acts define the duties which auxiliaries are not permitted to perform.

The hygienists' association also said that all restorative duties as well as dental health education should form part of a total preventive program. "Treatment is and should be part of prevention," the statement added.

National Health and Welfare Information Services.

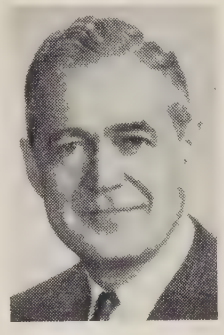
The role of dental auxiliaries, preceptorship training, and employment in public health were among the topics discussed at the annual meeting of the Canadian Dental Hygienists Association. The group met in Ottawa last October during the CDA national convention. Following the meeting, CDHA Past President Sharon B. French presented policy statements on these and other subjects to Tony Pearson, executive assistant to federal Health Minister John Munro.

### Doctor Swanson heads oral surgeons

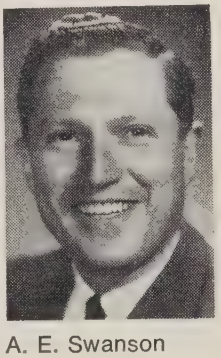
A. E. Swanson of Vancouver was installed as president of the Canadian Society of Oral Surgeons when that organization held its annual meeting in Ottawa September 30-October 1 in conjunction with the national convention of the Canadian Dental Association. He succeeds E. P. Millar of Montreal, V. K. Seth, Vancouver, was named secretary-treasurer.

R. G. Topazian, professor and chairman of the Department of Oral Surgery, School of Dentistry, Medical College of Georgia, was guest lecturer. Doctor Topazian, who graduated from McGill University's Faculty of Dentistry in 1955, discussed new advances and recent research in the treatment of the atrophic mandible and augmentation of the ridge with porous ceramic and other alloplastic materials. Jorgen Rud, Copenhagen, Denmark, president of the International Association of Oral Surgeons, addressed a luncheon audience prior to a clinical pathological conference.

The next annual meeting of the society will be held in Harrison Hot Springs, BC, June 29-July 2, 1972. The guest lecturer on that occasion will be Robert Walker from the University of Texas.



I. Wolch



A. E. Swanson

president-elect, and P. R. Dow, Vancouver, secretary-treasurer.

## Dental Education

### New dental school begins at Laval University

Laval University in Quebec City opened its school of dentistry September 13 with 16 students – 14 men and two women.

The new school, the tenth in Canada, has 12 full-time teachers. It occupies temporary quarters comprising laboratories, a 12 chair dental clinic, facilities for oral diagnosis, radiology and dental health education, as well as offices for teaching and non-academic staff.

A dental library, already started, will be completed in the next few years, according to Dean Gustave Ratté.

### Doctor Wolch new president of endodontists

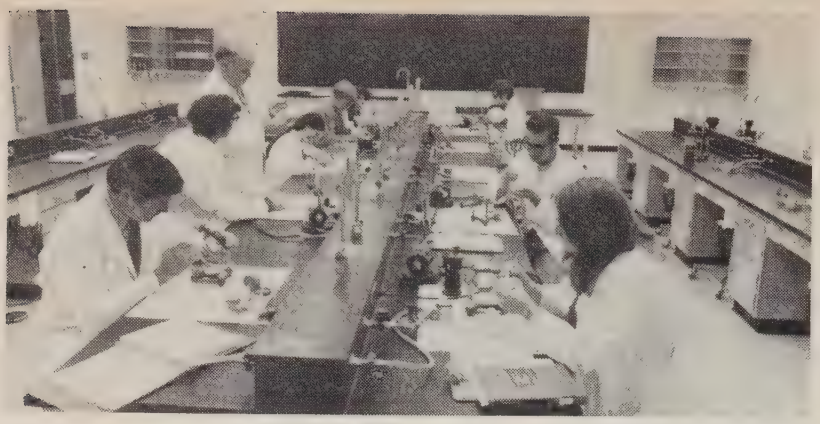
Isadore Wolch of Winnipeg is the new president of the Canadian Academy of Endodontics. He succeeds I. A. Arshawsky of Toronto. Named with Doctor Wolch were S. Rosen, Hamilton, Ont,

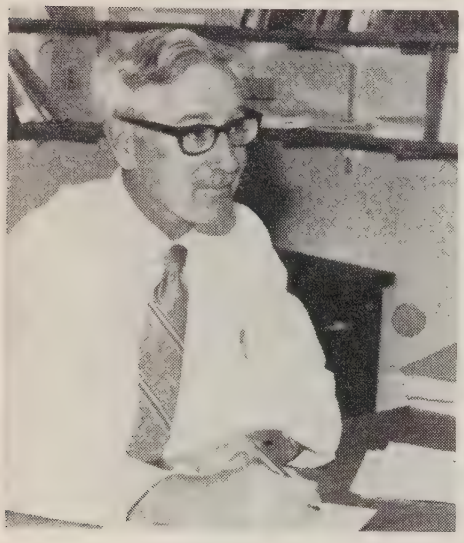
### Periodontists elect Doctor Winnick

A. N. Winnick of Toronto is the new president of the Canadian Academy of Periodontology, succeeding S. Golden, also of Toronto. C. Durand, Montreal, is president-elect and J. D. Stewart, Peterborough, is secretary-treasurer.

### Saskatchewan's Health Sciences Building opened

October 15, 1971, marked the official opening of the addition to the University of Saskatchewan's Health Sciences





Top left picture shows third year students working in a prosthetic laboratory in the new addition to the Health Sciences Building at the University of Saskatchewan. The picture on the right shows dental students hard at work as they begin clinical studies in the new facilities on the Saskatoon campus. Dean K. J. Paynter (lower left) at the desk in his new office.

Building at Saskatoon. The new extension rises seven storeys and encloses 205,000 square feet of gross floor area. It contains two and one-half times the space of the original building and provides improved space for the Colleges of Medicine and Dentistry and the School of Nursing.

The two top floors house the College of Dentistry which includes the administrative offices of the dean, a temporary dental clinic, two preclinical laboratories for teaching the fundamental techniques of making artificial teeth and fillings, a biology teaching laboratory, six research laboratories and conference and seminar areas. The dental clinic will eventually be housed in an addition planned for the university hospital.

One of the benefits of the inclusion of medicine, dentistry and nursing in a single, integrated facility is the opportunity to share classrooms and the library. The 29,000 volume health sciences library occupies a total of 13,000 square feet on two floors and can be expanded to a third floor if necessary. It serves all health science personnel on campus as well as practitioners throughout Saskatchewan.

K. J. Paynter, dean of the dental college, commented that the dental quarters are very well designed. He mentioned in particular the modern laboratories and the excellent new equipment. These facilities, he said, provide the structural basis for a program that embodies features completely new in dental education.

## New scholarship at Saskatchewan University

Dean K. J. Paynter of the College of Dentistry, University of Saskatchewan, has announced that the family of the late J. P. Whyte of Swift Current has established a scholarship to honour his memory.

The scholarship will be awarded each year to the student on graduation who achieves the best overall scholastic and clinical standing in the college during his five year undergraduate training.

Doctor Whyte was a former president of the Canadian Dental Association. He died March 30, 1970.

## Doctor Kronis receives a National Health Fellowship

M. Kronis, a 1959 Toronto dental graduate, has been awarded a $9,900 National Health Fellowship for further study at the Faculty of Dentistry, University of Toronto.

National Health Fellowships are used for university training in the organization and evaluation of health services and for health care research.

Doctor Kronis will study behavioural sciences related to dentistry. Part of his studies will include an assessment of cultural and social factors related to dental disease and attitude.

## Toronto faculty slates open house Feb 6

Dental education will again be on public display when Toronto's Faculty of Dentistry holds its annual "Open House" on Sunday, February 6, from 1:00 to 4:00 pm.

Everyone interested in dentistry is invited to come and bring their families and friends. Visitors will be able to tour the dental building and see demonstrations and exhibitions by students.

There is no charge and no tickets are needed. Refreshments will be served.

The dental building is located at 124 Edward St, off University Ave, immediately south of the Hospital for Sick Children.

## More appointments and promotions at U of T

R. C. Burgess was appointed chairman of the Department of Preventive Dentistry at Toronto's dental faculty, effective July 1, it has been announced. Doctor Burgess was previously associated with the Division of Biological Sciences and had major responsibility for teaching of biochemistry to dental students.

J. H. P. Main has been named acting chief of dental services at Sunnybrook Hospital, Toronto. B. Liebgott is assistant professor in the Department of Anatomy and H. F. MacKay is associate in dentistry in the Department of Prosthetics.

Promotions include: D. W. Lewis and A. T. Storey from associate professor to professor; F. G. Kellam from assistant professor to associate professor; Eric Freeman and B. Hemrend from associate in dentistry to assistant professor; and W. C. Sturtridge from lecturer to assistant professor.

## CFDE contributions by dentists surpass $22,500

An early November report shows that over 1,000 dentists have contributed to the Canadian Fund for Dental Education this year. In fact, over 200 donated at least twice in 1971, according to the Fund's executive director Murray McDonald.

Contributions from dentists total

Recipients of fellowships at the September 30 Ottawa convocation of the International College of Dentists, Canadian Section, are pictured above (left to right): J. A. Whyte, Ottawa; Col. J. W. Turner, Ottawa; A. D. Sparrow, Calgary; Samuel Rosen, Hamilton; G. C. McDowell, Kingston, Jamaica, WI; T. R. Marshall, Toronto; W. L. Goodwin, Harbour Grace, Nfld; F. H. Compton, Toronto; G. K. Chapman, Fort Erie, Ont; J. N. Callingham, Ottawa; K. C. Bentley, Montreal; and Marcel Archambault, Montreal.

$22,591 to October 31, an increase of 14 per cent over the same period last year. If this lead can be maintained to the end of the year, the minimum campaign target of $26,500 will be exceeded by over $2,000, reports Mr. McDonald.

Dentists who have not yet responded are urged to send their contributions to the CFDE, 234 St. George St, Toronto 180, Ont.

## Economics

### British Columbia accepts NDEB certificate again without strings

Dentists who hold the certificate of the National Dental Examining Board of Canada and have graduated from accredited Canadian dental schools will again be eligible for registration in British Columbia without further examination.

This is a return to the policy which existed in BC from 1957 to 1968.

### Professor wants health ombudsman to aid patients, health professionals

A political economist has called for a health ombudsman, not only to help patients, but physicians deprived of hospital privileges, and nurses, physicians and therapists involved in conflicts with each other.

J. T. McLeod, of the University of Toronto's Department of Political Economy, said consumers as well as health practitioners should be on the senior advisory committee to the Ontario health minister.

He told the Ontario Hospital Association October 26 that under present arrangements, the consumer is powerless and has no adequate means of expressing his interests or needs.

"The physicians, the technocrats, run the health care system," he said. "They control the licensing and standard of quality, the admission policies to medical schools, the medical fees and thereby the health care costs, the hospital admissions and the hospitals, the role and scope of nurses, optometrists, clinical psychologists, pharmacists, physiotherapists and laboratory technicians."

He added: "One of the most striking characteristics of the health care system is that the technocrats, the physicians, are responsible to no one but themselves."

Professor McLeod said he was not attacking physicians or suggesting medical care be run by patients. But the professionals should not be able to control the means and methods, the goals and the objectives. In any democracy, the professional must control the means but the laymen and the community must determine the ends. And he said the day is long past when professionals can set their fees without negotiation.

## Awards and Appointments

**R. G. Ellis,** Toronto, recently received an earned-honorary degree of DDSc from the University of Adelaide, Australia, where he graduated as a dentist 45 years ago. The invitation to Doctor Ellis to accept the degree was based on an examination of his published papers and a textbook of which he is the author. Doctor Ellis was dean of the Faculty of Dentistry, University of Toronto, from 1947 to 1970, when he resigned to become chairman of the university's Health Sciences Council.

## Deaths

Boyd, Dalton Madill. 77. Creemore, Ont. Royal College of Dental Surgeons of Ontario, 1916. 31-10-71. Survived by Elsie (wife); Rev. Charles Gordon (brother); Mrs. Maud Johnson and Mrs. C. C. Chapman (sisters).

Epstein, Louis Stanley. 63. Montreal. McGill University, 1932. 4-10-71. Survived by Lilliam (wife); Mrs. Flo Shustack and Mrs. Ruby Levy (sisters); Fred (brother); and Betsy (daughter).

Hutchison, John Robinson. 68. St. John. Tufts University, 1924. 3-10-71. Survived by Adrienne (wife); Mrs. C. C. Wilson and Mrs. A. G. Matthews (daughters); two brothers and five grandchildren.

Jamieson, Roy. 83. Vancouver. Northwestern University, 1912. 16-5-71. Survived by Annie (wife); two daughters, two stepsons and four grandchildren.

Jarjour, E. J. 79. Winnipeg. McGill University, 1917. 14-10-71. Survived by Fedwa (wife); Doctor Edward, Doctor Wilfred and Raymond (sons).

Labelle, Charlemagne. 72. Montreal. Université de Montréal, 1926. 16-9-71. Survécu par Yvette (femme).

Nimmons, George Rista. 82. Vancouver. Indiana Dental College, 1911. 24-10-71. CDA Associate Member.

Reynolds, Jack Wheaton. London, Ont. Royal College of Dental Surgeons of Ontario, 1931. 4-9-71. Survived by Margery (wife); Jack (son); Mrs. Gordon Adamson (sister) and two grandchildren.

Waterhouse, Gerald. 41. Edmonton. University of Alberta, 1954. 12-10-71. Survived by Eileen (wife); Mr. and Mrs. Henry Waterhouse (parents); Michael (brother); Mrs. Joseph Bickers (sister).

Four Canadian dentists recently became the first life members of the Canadian Academy of Prosthodontics. They are W. D. Clark, Stoney Creek, Ont; C. H. Moses, Toronto; S. D. Frazer, Edmonton; and R. E. Dagg, Montreal. All are charter members of the academy. Doctor Dagg was not present when this photo was taken.

## L'enseignement dentaire

### Inauguration de l'Ecole de médecine dentaire à Laval

Le Dr Gustave Ratté, directeur de l'Ecole de médecine dentaire à l'Université Laval a annoncé l'inauguration de cette nouvelle institution le 13 septembre 1971.

L'Ecole de médecine dentaire a accepté 16 étudiants dont deux jeunes filles. Le corps professoral s'élève actuellement à 12 professeurs à plein temps, soit à l'université ou aux études. Au 1er juin 1972 les cinq qui ne sont pas encore revenus se joindront à l'Ecole.

Le Docteur Gustave Ratté

Celle-ci sera logée à partir du mois de décembre dans des locaux temporaires d'une surface de 10,000 pieds carrés. Actuellement les étudiants suivent leurs cours en sciences fondamentales et en biologie buccale à la Faculté de médecine. Les locaux temporaires comprendront les laboratoires d'enseignement, une clinique de 12 fauteuils, une salle de diagnostic, une salle de rayons X, une salle d'enseignement d'hygiène buccale, les bureaux des professeurs et des secrétaires. Une bibliothèque déjà assez considérable sera complétée dans le courant des deux prochaines années.

### Le Dr Ratté parle de l'avenir de la profession dentaire

Dans le discours qu'il prononçait à l'inauguration de l'Ecole de médecine dentaire de l'Université Laval, son directeur, le Dr Gustave Ratté, après avoir brossé un tableau de l'histoire de la médecine dentaire, déclarait: "Bien malin serait celui qui pourrait décrire de façon précise quelle sera la pratique dentaire en 1975, 1980 ou 1985, surtout dans l'état d'évolution précipitée que connaît notre société. Cependant, il ne faut pas hésiter à dire qu'elle sera différente de celle d'aujourd'hui pour plusieurs raisons qui devront orienter le programme des études".

Parmi ces raisons, le Dr Ratté signalait les méthodes de prévention et l'hygiène dentaire publique qui prendront un essor considérable. Il précisait: "Nous espérons que les gouvernements provinciaux et municipaux feront preuve d'un courage non dicté par l'électoralisme pour généraliser la fluoration des eaux de consommation".

Selon lui, bien d'autres moyens de prévention que ceux connus aujourd'hui seront employés probablement dans les 10 prochaines années. Il songeait alors à la foule de découvertes rendues possibles maintenant grâce au développement de la technologie. Il songeait également aux modifications que l'on peut déjà prévoir dans la pratique dentaire du futur dentiste. Elle sera complètement révolutionnée, explique-t-il, ajoutant: ". . . la pratique-solo va disparaître pour faire place à la pratique-groupe". Et le dentiste est appelé à jouer un rôle fort important dans ce que l'on appelle de plus en plus l'équipe de la santé qui a été définie par les membres du Comité Bonneau comme étant un "ensemble de personnes qui, par l'apport de leur formation et de leur compétence particulières, différentes mais complémentaires, collaborent à la réalisation des objectifs suivants soit la prévention des maladies, le soin et la guérison des malades". Le rapport Bonneau précise en outre: "Dans ce groupe où s'élaborent les programmes diagnostiques et thérapeutiques et où se prennent habituellement les décisions majeures, se rencontrent les professionnels sur qui repose la responsabilité principale dans un secteur donné de la santé. Parmi ces professionnels, on compte les médecins, les dentistes, les biochimistes, les pharmaciens, les infirmières, etc.

"L'efficacité et la qualité du travail de l'équipe dépendent en premier lieu du climat de sérénité qui suppose lui-même une confiance qui repose à son tour sur la bienveillance réciproque de tous les membres de l'équipe, qui leur fait présumer, et ne pas douter sans raison valable, de la compétence et de l'honnêteté professionnelles de chacun.

"Un deuxième élément essentiel au bon fonctionnement de l'équipe de la santé est cet esprit d'engagement personnel qui doit en animer les membres et les rendre conscients de l'importance de leur participation personnelle à l'entreprise sanitaire et de leur part de responsabilité à l'égard du malade.

"Cet esprit d'équipe ne saurait exister que si chacun des membres fait preuve de considération et de respect à l'égard de toutes les professions qui figurent au sein de l'équipe. Il ne peut être question d'un tel esprit au sein de groupes de travail où l'on entretiendrait une forme quelconque de discrimination professionnelle. Il n'est peut-être pas superflu de mentionner ici que l'équipe de la santé doit avoir pour première préoccupation le malade et non pas certaines professions qui, pour des raisons historiques, ont occupé, depuis de nombreuses années, une place prépondérante dans le domaine de la santé.

"L'intégration de l'enseignement de la médecine dentaire au programme des Sciences de la santé sera un apport précieux tant pour les étudiants en médecine dentaire que pour ceux des autres disciplines. Si, en effet, d'une part, cette orientation contribue à rehausser le prestige du futur dentiste, elle sera l'occasion, d'autre part, d'apporter aux autres membres de l'équipe de la santé de plus amples connaissances sur l'importance de la santé buccale et ses répercussions sur la santé générale".

### Dons généreux des dentistes au FCED

Les premiers rapports indiquent que cette année, plus que par les années passées, les dentistes répondent favorablement à l'appel lancé par le Fonds canadien pour l'enseignement dentaire pour obtenir de nouveaux capitaux.

Selon le directeur du FCED, D. Murray McDonald, l'appui financier provenant des membres de la profession indique une hausse de 40 p.c. et plus sur les chiffres de l'an passé pour la même période.

"Les membres du conseil du Fonds ont approuvé jusqu'ici des dons totalisant plus de $86,000," de dire le président du Fonds M. E. "Bud" Bower, qui ajoute: "J'espère de tout coeur que tout dentiste n'ayant pas encore fait parvenir sa contribution ne tardera pas à le faire en écrivant au FCED, 234 rue St-George, Toronto 180".

### Vert—vous passez; rouge—éliminé

Lors du récent congrès national de l'ADC à Ottawa, l'une des attractions qui a le plus retenu l'intérêt des congressistes est sans doute le dispositif d'enseignement visuel, unique en son genre, qui propose un nouveau quizz électronique. Créé et exposé par l'Académie canadienne de périodontologie, cet appareil était consacré cette année à la pathologie buccale.

L'appareil en question se compose de huit négatoscopes illuminés qui soumettent des problèmes de diagnostic en pathologie buccale. Accompagnant les grandes diapositives dont on se sert au cours des leçons en clinique, se retrouvent des diapositives de coupes microscopiques ainsi que des radiographies, lorsque cela est possible. Sont aussi fournis l'anamnèse ainsi que les résultats des tests pertinents effectués en laboratoire.

Chacun des huit problèmes permet quatre réponses de diagnostic. Lorsqu'on appuie sur le bouton relié à la réponse juste, l'écran s'illumine en vert; c'est une lumière rouge qui apparaît lorsqu'on appuie sur les trois autres boutons.

Les diapositives peuvent être remplacées par d'autres soumettant ainsi des problèmes de diagnostic différents. Les universités canadiennes qui sont intéressées peuvent emprunter cet appareil pour de courtes périodes de temps; il suffit de contacter J. D. Stewart, 311 Rubidge St, Peterborough, Ont.

### 12 dentistes deviennent membres du Collège royal

Le Collège royal des chirurgiens-dentistes du Canada a accepté comme membres 12 dentistes qui se sont signalés par des réalisations importantes dans divers domaines des spécialités dentaires. La cérémonie a eu lieu lors du congrès national de l'ADC à Ottawa.

Voici le nom des nouveaux membres du Collège: G. I. Baker, H. J. Levin et W. S. Prusin, tous trois de Toronto; J. G. Zosky, de Mississauga, Ont; A. D. Taliano, de Ste-Catherines, Ont; J. A. Haws et C. W. Oyer, de Calgary, Alta; R. C. McClelland, d'Edmonton; E. M. Hershenfield, de Montréal; et P. R. Morgan, de Minneapolis, Minn.

H. R. MacLean, d'Edmonton, et L. E. MacLachlan, d'Ottawa furent nommés membres honoraires.

## Les organismes dentaires

### Le Dr Feasby élu président du Collège royal

W. H. Feasby, de London, succède maintenant à A. M. Hayes, de Vancouver, au poste de président du Collège royal des chirurgiens-dentistes du Canada. F. W. Lovely, de Halifax, est nommé vice-président. J. E. Speck, de Toronto, assume toujours le rôle de secrétaire-régistraire-trésorier.

W. H. Feasby

## Services dentaires des Forces armées canadiennes

### Récentes nominations et promotions

Le Lt-Col J. M. Donely a pris la direction de l'unité dentaire No 35 en Allemagne. Il assume ce poste depuis le 5 juillet, remplaçant ainsi le Lt-Col D. H. Protheroe qui a été nommé à la Base Esquimalt des Forces armées canadiennes en Colombie-Britannique.

La promotion de H. W. Brogan au poste de lieutenant-colonel a été annoncée le ler septembre. Le Col Brogan est un diplômé de l'Université Dalhousie (promotion 1961), et il s'occupe de l'enseignement à l'Ecole des services dentaires des Forces armées canadiennes à la Base Borden en Ontario.

Plusieurs autres officiers ont terminé divers cours d'éducation permanente. Mentionnons:

–Le Maj. J. F. A. Marcil en périodontie à l'Hôpital Walter Reed, Washington, maintenant affecté à l'Unité dentaire No 1 à Ottawa;

–Le Maj. J. H. Marion en orthodontie à l'Université de Montréal, nommé à la Base des Forces armées canadiennes à Cold Lake, Alberta; et

–Le Maj. H. S. Wood en hygiène dentaire publique à l'Université de Toronto, maintenant promu à la Division des services dentaires, Quartiers généraux des Forces armées canadiennes à Ottawa.

## L'économie

### Programme de vérification des services rendus

Dans un récent message aux professionnels de la santé, la Régie de l'assurance-maladie annonçait la création d'un programme continu de vérification des services assurés rendus. Cette vérification doit permettre à la Régie de s'assurer que les contributions au régime d'assurance-maladie sont utilisées conformément à la loi, aux règlements et aux ententes. Le service du budget et de l'analyse financière de la Régie assume la responsabilité de l'administration de ce programme, dont l'objectif est triple:

–confirmer, au moyen d'un échantillonnage hebdomadaire effectué auprès d'une vingtaine de professionnels de la santé hors-Québec et d'une centaine de bénéficiaires ayant eu recours aux services de professionnels participants au Québec, que les services assurés ayant fait l'objet de demandes de paiement auprès de la Régie ont effectivement été rendus;

–prévenir, déceler ou corriger les abus ou les erreurs possibles dans la facturation des services rendus;

–récupérer les sommes payées par la Régie pour des services assurés non rendus et rembourser le coût des services rendus non réclamés.

Pour les fins de l'administration de ce programme, la Régie a élaboré deux formules qui, selon le cas, sont expédiées aux bénéficiaires ou aux professionnels de la santé ci-haut mentionnés.

*Bénéficiaire*

La formule destinée au bénéficiaire porte les indications suivantes: nom et numéro de dossier du professionnel traitant, nom du bénéficiaire, description du service ainsi que la date à laquelle ce service est présumé avoir été rendu.

Dans le but de sauvegarder le secret professionnel, la description des services est donnée à partir d'une liste de 15 génériques.

La Régie demande au bénéficiaire de confirmer ou d'infirmer les renseignements inscrits et de lui retourner la formule dans une enveloppe affranchie incluse.

Si le bénéficiaire corrobore les données fournies, le dossier correspondant du professionnel concerné est alors annoté en conséquence et la formule est détruite.

Cependant, si le bénéficiaire affirme avoir reçu plus de services décrits, le

dossier correspondant du professionnel concerné est vu par un comité à cette fin et, si nécessaire, la Régie communique à nouveau avec le bénéficiaire pour obtenir des précisions supplémentaires. Dans les cas où un doute sérieux persiste à ce stade, le dossier est transmis au service d'Enquête de la direction Contentieux et Secrétariat, auquel il appartient d'établir le bien-fondé de la contestation et, s'il y a lieu, d'initier une enquête approfondie.

*Professionnel hors-Québec*

La formule destinée au professionnel de la santé hors-Québec contient sensiblement les mêmes renseignements que celle que la Régie expédie aux bénéficiaires sauf qu'elle indique en plus le montant des honoraires remboursés directement au bénéficiaire pour les services que ce professionnel est présumé lui avoir rendus. La Régie demande au professionnel d'attester qu'il a effectivement dispensé ces services au bénéficiaire qui a réclamé un remboursement de la Régie.

*Professionnel désengagé*

Le programme de vérification des services rendus ne s'applique pas au professionnel désengagé puisque cette vérification s'effectue de façon systématique, la Régie faisant parvenir au professionel désengagé des états de compte sur lesquels paraissent les sommes versées aux bénéficiaires pour des services qu'il leur a rendus.

Le programme de vérification des services rendus permettra d'effectuer en un cycle bisannuel une vérification portant sur chaque professionnel participant du Québec.

## La recherche

### Une substance de scellement diminue la carie de 99 p.c. après deux ans

Selon Michael Buonocore, du Centre dentaire Eastman à Rochester, New York, les enfants traités à l'aide d'une substance à scellement pour les puits et fissures ont une réduction de caries de l'ordre de 99 p.c. après deux ans.

Le Dr Buonocore qui s'adressait au congrès national de l'ADC à Ottawa au mois d'octobre a donné les derniers résultats d'une étude qui a duré deux ans et qui a révélé une réduction de caries des puits et fissures après deux ans de l'ordre de 99 p.c., réduction rendue possible grâce à une seule application de résine adhésive pour sceller les parties vulnérables de dents permanentes.

Le Dr Buonocore a de plus ajouté que des études ultérieures ont montré qu'à la fin de la seconde année l'adhésif était encore efficace dans 87 p.c. des cas tandis que 13 p.c. seulement des cas indiquaient une perte totale de l'adhésif sur une surface donnée.

Les surfaces d'émail utilisées à des fins de contrôle indiquaient une apparition de caries de l'ordre de 60 p.c., d'ajouter le Dr Buonocore.

Le Dr Buonocore a insisté sur le fait qu'appliquer la substance de scellement sur les dents est une opération simple et rapide, et que, doublée de certaines autres mesures préventives ce travail pourrait être effectué par le personnel dentaire auxiliaire.

Le Dr Buonocore est coordinateur pour la recherche au Centre dentaire Eastman et professeur adjoint en recherche clinique à la Faculté de médecine et d'art dentaire de l'Université de Rochester.

### L'occlusion équilibrée peut éviter la douleur de l'ATM

Toute force dirigée vers un plan incliné produit une force résultante à angle droit de ce plan, selon un expert en dentisterie restauratrice qui a participé à la discussion en groupe sur l'occlusion lors du congrès national de l'ADC à Ottawa. W. R. Scott, de Vancouver, a déclaré que les dents dont la forme et la disposition favorisent la contrainte latérale peuvent devenir mobiles lorsque cette force dépasse la tolérance physiologique du parodonte.

Le Dr Scott a averti les congressistes que le déplacement pathologique peut suivre la perte de dents qui sont essentielles à une dentition fonctionnelle. Ceci, à son tour, bouleverse la balance des forces occlusales et éventuellement change la forme et la courbure de l'arcade dentaire.

Toutes sortes de problèmes pathologiques – y compris la douleur de l'articulation temporo-mandibulaire – peuvent survenir lorsque les dents manquantes ne sont pas remplacées. Le meulage sélectif ne soulagera que pendant quelques heures ou quelques jours, tout au plus, si l'espace dans l'arcade n'est pas éliminé et si le guidage incisif n'est pas rétabli, a-t-il déclaré.

Lorsque l'on emploie un pont fixe pour remplacer des dents manquantes, la forme des dents antagonistes doit aussi être modifiée afin de prévenir l'usure ultérieure et la récidive de l'interférence des cuspides.

Le contour des restaurations à l'amalgame d'argent peut être modifié afin de s'accorder avec les forces de l'occlusion mais les dents ne devraient jamais être réduites de sorte qu'elles ne soient plus en fonction, a dit le Dr Scott.

Lorsque les dents supérieures antérieures sont préparées pour des incrustations ou des couronnes, leurs surfaces linguales doivent être réduites pour accommoder une épaisseur suffisante de la substance employée pour la restauration. Mais les dents inférieures antagonistes ne devraient pas être raccourcies parce que cette mesure pourrait aussi raccourcir le guidage incisif et causer l'interférence des cuspides sur le côté opposé de l'arcade.

Quant aux restaurations porcelaine et métal, le dentiste de Vancouver a déclaré qu'il est difficile de copier les cuspides, les arêtes marginales et les sillons dans la porcelaine. Mais les nouvelles fraises à finir au carbure avec leurs lames multiples rendent facile la rectification de l'occlusion de l'or, de la porcelaine, de l'amalgame et de la dent sans vibrations et produisent un fini très poli.

### L'importance de l'occlusion fonctionnelle

L'alignement exact des dents et le rapport fonctionnel harmonieux entre la mandibule et le maxillaire supérieur sont essentiels à l'établissement d'une occlusion dans laquelle toutes les parties constituantes fonctionnent efficacement et sans douleur, selon F. E. Shamy, un orthodontiste de Montréal, qui donne aussi des cours à l'Université McGill. Il était l'un des participants à une discussion en groupe sur l'occlusion lors du congrès national de l'ADC à Ottawa.

Le Dr Shamy a déclaré qu'il essaye d'obtenir l'alignement sans extraire de dents. "J'ai recours aux extractions multiples des prémolaires seulement lorsqu'il existe un vrai désaccord de l'espace dento-alvéolaire avec beaucoup d'os et de dent comparé au milieu musculaire, ou lorsque les molaires et les prémolaires causent une migration mésiale des arcades dentaires".

Le Dr Shamy a reconnu qu'il existe cependant quelques exceptions à cette règle. Elles comprennent les dents avec des couronnes mutilées et des lésions périapicales, les patients qui ont perdu leurs dents prématurément, une dimension verticale excessive associée à une béance antérieure prononcée, et les adultes qui doivent être préparés pour des prothèses.

"Lorsqu'il y a chevauchement des incisives inférieures, je préfère extraire une incisive ou réduire la largeur de toutes les incisives plutôt que d'extraire deux prémolaires inférieures", a-t-il dit. Il préfère aussi corriger une relation Classe II des molaires en faisant la rotation du plan occlusal et en rétractant les segments maxillaires buccaux, plutôt que d'extraire les deux prémolaires maxillaires.

Le Dr Shamy a fait ressortir un argument important qui a trait aux résul-

tats esthétiques qui sont conformes aux exigences fonctionnelles. L'origine ethnique et la configuration faciale qui s'ensuit est toujours importante, a-t-il dit, ajoutant aussi qu'il ne faut pas changer le profil des tissus mous à cause d'exigences fonctionnelles strictes.

Il doit y avoir une harmonie acceptable entre la relation centrée, l'occlusion centrique et les mouvements mandibulaires. L'occlusion centrique doit être libre de contacts prématurés. De la même façon, les mouvements latéraux à partir de la relation centrée doivent être libres de contacts interférents.

Le surplomb et la supraclusion incisive doivent être en harmonie avec le guidage incisif exact et les mouvements mandibulaires. Il n'est pas nécessaire d'établir une position de rétraction des condyles dans la cavité glénoïde ou une position des condyles qui soit supérieure et vers l'avant.

En mettant l'accent sur l'importance du traitement de contention après que l'appareil d'orthodontie ait été ôté, le Dr Shamy a déclaré que la meilleure technique pour stabiliser l'occlusion après le traitement orthodontique est par l'entremise de la rectification de l'articulation et en corrigeant la forme des cuspides. Mais l'intercuspidation correcte des dents dans la relation maxillo-mandibulaire est un des prérequis à la rectification de l'articulation en orthodontie. Une bonne position centrique sans déplacer de contacts, associée à des mouvements mandibulaires fonctionnels sans intervention latérale, constitue l'objectif clinique principal qui donne lieu à une stabilité de l'occlusion après le traitement.

## Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 octobre:

*Fonds à revenu fixe* $12.383;

*Fonds d'actions ordinaires* $21.673.

L'avoir total (valeur marchande) du régime se montait à $10,100,430.70.

Au cours du mois précédent, les transactions ont été les suivants: vente 21,600 actions de Western Broadcasting Co. Ltd.

Les cotisations au Régime d'épargne-retraite de l'ADC pour l'année fiscale 1971 doivent être versées avant le 29 février 1972. Les sommes reçues après cette date devront compter pour l'année 1972.

Les lecteurs sont donc priés d'envoyer dans les plus brefs délais leur cotisation directement à: Canadian Dental Service Plans Inc, 230 rue St. George, Toronto 180, Ont.

# Impôt sur le revenu

## Déclaration fédérale d'impôt sur le revenu

Le Ministère du Revenu national a révisé les instructions suivantes, qui ont pour but d'aider les dentistes à préparer leur déclaration annuelle, pour l'imposition sur le revenu.

### Le revenu

Chaque dentiste doit tenir un compte exact des revenus qu'il retire de sa profession (honoraires) et d'autres sources (placements, loyers de biens immobiliers, etc.). Les comptes doivent être clairs et susceptibles d'être comparés rapidement à la déclaration remise. Les comptes doivent être tenus dans des livres à cet effet, lesquels doivent être conservés tant que le dentiste ne reçoit pas la permission écrite de s'en défaire du ministre du Revenu national.

### Les frais

Les postes suivants devraient figurer sous la rubrique des frais, et on doit conserver aux fins de vérification les documents à l'appui des dépenses qui y sont portées:

(a) Fournitures dentaires et assimilées.

(b) Préposé à l'entretien, infirmière, comptable, blanchisserie et assurance contre la négligence professionelle:

Le montant des appointements et salaires payés doit être déclaré sur des feuillets T4-T4A sommaires et T4 supplémentaires, fournis par le Bureau de district de l'impôt. (La Loi de l'impôt sur le revenu n'autorise pas la déduction d'un salaire payé par le mari à la

femme ou vice versa. Si une telle somme est versée, elle doit être rajoutée au revenu du payeur.)

(c) Frais de téléphone liés à l'exercice de la profession.

(d) Salaire d'assistante:

Les noms et adresses des assistantes auxquelles un salaire est payé, ainsi que le montant payé, doivent être déclarés chaque année, au plus tard le dernier jour de février, sur les feuillets T4-T4A sommaires et T4A supplémentaires. (Ne pas confondre avec la déclaration d'impôt individuelle, la formule T1, qui doit être envoyée au plus tard le 30 avril de chaque année.)

(e) Frais de loyer:

On doit fournir le nom et l'adresse du propriétaire des locaux loués (de préférence) ou de l'agent [voir (g)]. On doit percevoir à la source une taxe de non-résident sur le loyer payé à des propriétaires non-résidents de locaux loués.

(f) Frais de poste et papeterie.

(g) Dépenses proportionnelles du dentiste exerçant à son domicile:

1. La résidence appartient au dentiste: Quand le dentiste exerce dans une maison qu'il possède et qu'il habite, il a droit, pour la surface occupée par le laboratoire, le cabinet et la salle d'attente, à une déduction proportionnelle des dépenses de la maison calculée d'après le rapport de cette surface à la superficie totale de la maison. Les frais comprennent les taxes, l'électricité, le chauffage, l'assurance, les réparations et l'intérêt hypothécaire. (Les nom et adresse du créancier hypothécaire doivent être mentionnés.) N.B. —Voir article 2 (m) pour la dépréciation.

2. La résidence est louée par le dentiste: La location et autres frais d'entretien payés par le dentiste seront répartis de la même façon tels que décrits ci-dessus.

(h) Frais divers (ne figurant pas ailleurs):

Les frais portés à ce poste doivent se prêter à l'analyse et être étayés par des documents.

La déduction de dons de charité est autorisée jusqu'à 10 pour cent du revenu net total, à condition de fournir les reçus au Bureau de district de l'impôt. Les dons de charité effectués dans l'exercice de la profession ne doivent pas être classés avec les frais professionnels, ils constituent, comme toutes les autres formes de dons, une déduction du revenu général.

Les droits annuels payés aux organismes de réglementation qui accordent l'autorisation de pratiquer, ainsi que les cotisations d'association doivent être inscrits sur la déclaration comme frais professionnels.

Les frais de scolarité payés en 1965 et les années suivantes à une maison d'enseignement au Canada, pour un cours post-universitaire, sont déductibles, mais on ne peut pas déduire les dépenses de voyage et d'entretien occasionnés par un tel cours.

(i) L'intérêt versé sur une somme empruntée peut être soustrait du revenu professionnel si l'emprunt a été fait pour des besoins professionnels. Si la somme a été empruntée pour effectuer un placement, l'intérêt est déductible du revenu de placements. L'intérêt payé sur un emprunt effectué à des fins personnelles ne donne lieu à aucune déduction sur le revenu.

(j) La taxe d'affaire constitue une dépense professionelle, mais non les impôts sur le revenu.

(k) Frais d'automobile:

Les dépenses de taxi et d'automobile encourues en gagnant le revenu professionnel sont déductibles lorsque le dentiste doit rendre visite au patient à domicile. Cependant le coût du transport entre le domicile du dentiste et son cabinet n'est pas déductible du revenu. (La façon de calculer la réclamation des dépenses d'automobiles est exposée dans le Bulletin de renseignements No 28 de la Division de l'impôt du ministère du Revenu national. Elle a été partiellement reproduite dans le numéro de mars 1965 du Journal, pp 209-210.)

(l) Les cotisations des clubs mondains ne constituent une déduction du revenu que lorsque, et dans la mesure où, elles sont versées pour des raisons professionnelles, et tout dentiste qui les déduit peut être requis de prouver à la satisfaction des autorités fiscales que les sommes réclamées ont été dépensées entièrement et directement dans le but d'accroître son revenu professionnel. Les "cotisations de clubs sociaux" représentent les cotisations ou droits, annuels ou mensuels, des membres; elles ne comprennent pas les droits d'admission ou d'entrée, ni l'achat d'une part du capital social d'un club, ni les frais de nourriture, de boisson ou de logement, ni les droits versés pour y recevoir des invités et autres du genre.

(m) Allocation du coût en capital (dépréciation):

Le calcul de l'allocation du coût en capital aux fins de l'impôt est le même que celui de l'année dernière.

Pour tous renseignements supplémentaires, consultez les Règlements ou le Bureau de district de l'impôt.

**Frais de congrès**

Les frais des congrès sont déductibles pour celui qui exerce une profession, mais l'allocation est limitée aux frais de deux congrès par année fiscale. La participation du contribuable au congrès doit se fonder sur des motifs professionnels. Les dépenses déductibles doivent être raisonnables et le contribuable doit indiquer:

1. Les dates auxquelles ou entre lesquelles le congrès s'est tenu, et le lieu.

2. Le nombre de jours de présence, justifié par un certificat de présence délivré par l'organisme responsable du congrès.

3. Les frais encourus, en distinguant les frais (a) de voyage, (b) de repas, (c) d'hôtel, à l'appui desquels on doit demander et conserver au moins les reçus.

Toutes les dépenses de nature personnelle, y compris celles qui seraient entraînées par la présence au congrès de l'épouse (ou du mari) du contribuable sont exclues de ce qui précède.

Les frais de participation à un congrès ne peuvent pas être déduits du revenu si celui-ci est un salaire; une telle déduction est alors interdite par l'article 5 de la Loi.

Le Ministère du revenu national a exprimé l'opinion que, généralement, le but professionnel d'un congrès commandité par une firme commerciale ou une organisation professionnelle canadienne, ne demande pas qu'il se tienne en dehors du Canada, lorsque l'organisation a un caractère national ou en dehors de la province, de la municipalité ou de la région du Canada où se limitent les activités de l'organisation. En conséquence, les dépenses encourues par suite de la par-

ticipation à un congrès commandité par une organisation canadienne, qui s'est tenu en dehors de ces limites géographiques, ne sont généralement pas considérées comme déductibles pour le calcul du revenu. A cette fin, un congrès qui s'est tenu à l'occasion d'une croisière sera considéré comme ayant eu lieu en dehors du Canada.

### Régimes d'épargne-retraite enregistrés

Le montant déductible pour ceux qui contribuent à un régime d'épargne-retraite enregistré se limite:

(a) Dans le cas d'un employé percevant un salaire et couvert par un plan ou un fonds de pension enregistré, (qu'il cotise au fonds de pension ou non) — à $1,500 ou 20 pour cent du revenu gagné, moins le montant, s'il y en a un, qu'il est autorisé à déduire de son revenu pour sa contribution au fonds de pension.

(b) Dans les autres cas, au moindre de $2,500 ou de 20 pour cent du revenu gagné. Le "revenu gagné" comprend d'ordinaire le salaire perçu (avant toute déduction pour pension) ou le revenu provenant d'un commerce ou de l'exercice d'une profession, plus les revenus nets de loyers.

Sont déductibles les sommes qui ont été versées en 1971 et pendant 60 jours après la fin de l'année. Un versement effectué en janvier ou février 1971 ne peut pas être déduit en 1971 s'il aurait pu l'être en 1970.

Pour savoir si un régime futur ou existant donne droit à la déduction, on doit se renseigner auprès de la société qui offre le régime, car c'est elle qui normalement est responsable d'expliquer le régime et de le faire enregistrer.

Les dentistes qui ont demandé à bénéficier du régime d'épargne-retraite de l'Association dentaire canadienne (RERADC) avant le 29 février 1972 sont assurés qu'ils sont inscrits comme cotisants à un régime d'épargne-retraite enregistré et que leur contribution est déductible pour l'année fiscale 1971. La date limite des inscriptions et des contributions pour 1971 est fixée au 29 février 1972.

Un état de compte personnel et un reçu indiquant le montant des contributions seront adressés à chaque cotisant en mars 1972, à l'appui des déductions réclamées dans la déclaration d'impôt sur le revenu pour 1971.

Les demandes d'inscription au RERADC reçues après le 29 février 1972 donnent droit à la prorogation de l'impôt pour 1972.

### Paiement de l'impôt

Les particuliers qui retirent plus de 25 pour cent de leur revenu de sources autres qu'un traitement ou un salaire sont requis de payer l'impôt de chaque année par versements trimestriels au cours de l'année, aux dates suivantes: 31 mars, 30 juin, 30 septembre et 31 décembre.

### Dentistes rémunérés par contrat

La loi de l'impôt sur le revenu autorise à déduire certains frais d'un revenu constitué par un traitement.

Les frais déductibles comprennent: les frais de déplacement, les cotisations professionnelles, le loyer de bureau, le salaire d'un assistant ou de son suppléant, les fournitures nécessaires à l'exercice de la fonction de l'employé.

Certaines conditions sont attachées à la déduction des frais. Les dispositions de la loi sont, en gros:

(a) Que les frais aient été encourus dans l'exercice des fonctions de l'employé.

(b) Que le contrat d'emploi stipule que les frais sont à la charge de l'employé.

(c) Pour réclamer les frais de déplacement, que l'employé soit contraint d'exercer les fonctions de son emploi loin du lieu d'affaires de son employeur. Les déplacements entre le domicile du dentiste et son cabinet sont exclus.

### Revenu d'une société

Les dépenses supplémentaires encourues par un associé et qui n'ont pas été payées par la société peuvent être déduites de la part du revenu de l'associé. Cependant l'associé doit être en mesure de justifier ces dépenses, d'expliquer pourquoi elles n'ont pas été assumées par la société et de montrer qu'elles ont été entreprises nécessairement pour gagner le revenu de la société.

### Impôt provincial des particuliers

Chacune des 10 provinces lève son propre impôt sur le revenu des particuliers qui y résident. Les particuliers dont le revenu est soumis à l'impôt provincial ne sont pas tenus d'envoyer une déclaration provinciale d'impôt sur le revenu séparément, excepté pour la province de Québec.

### Frais médicaux

Pour les années d'imposition 1969 et suivantes, un contribuable, en faisant le calcul de son revenu imposable, ne peut inclure dans les frais médicaux des frais qu'il a acquittés lui-même ou qui ont été acquittés en son nom par son représentant juridique, lorsque le contribuable ou tel représentant s'est fait rembourser ou est en droit de se faire rembourser ces frais en vertu d'un régime d'assurance de soins médicaux établi conformément à une loi votée par le Parlement d'une province qui satisfait au critère stipulé dans le paragraphe (1) de l'article 4 de la Loi sur les soins médicaux.

# Dental care in the Sioux Lookout Project

*The following article describes how federal government officials and University of Toronto dentists joined forces to provide a more effective dental service to the Indian residents of an isolated region in northwestern Ontario.*

Sioux Lookout is a small town in a remote part of northwestern Ontario. The surrounding area, particularly to the north, is populated almost exclusively by Indians, although few live in the town itself. Delivery of medical care is difficult in such a remote area. There are a few health centres outside the town, many of them inaccessible for part of the year. This problem is a major challenge to those who are responsible for providing health care for Indians, and now someone is prepared to meet that challenge more aggressively than was previously possible.

Two years ago Doctor W. H. Bain, professor of paediatrics at the University of Toronto and chief of the Department of Paediatrics at the Hospital for Sick

Fig 1 It is a short walk to the dental clinic in the satellite community of Wunnummin Lake, Ont.

Fig 2 Loading a Beechcraft at Sioux Lookout just before "break-up."

Children, offered the assistance of hospital staff and resources to the federal government in providing health care for Canadian Indians and Eskimos. I was asked, and I enthusiastically agreed, to involve the hospital's dental department. The government expressed great interest in the offer, and it was subsequently agreed to establish the program on a university basis.

The plan which evolved is called the Sioux Lookout Project. It covers the entire Sioux Lookout zone of northwestern Ontario, divided into north and south sections by the CNR line running from Hearst through Sioux Lookout to the Manitoba border.

Fig 3 Moving day for the dental clinic.

## Area

The northern part of the zone is populated by approximately 8,000 Indians and this area is the prime target for the dental component of the project. About 7,000 live south of the railway line. There is one hospital in Sioux Lookout and six health centres in the southern part of the zone. The northern section has six nursing stations, located in the most densely populated areas. All but one are accessible by air only, except during freeze-up and breakup from mid-November to mid-December and from mid-April to mid-May. Each station serves up to seven satellite communities (Fig 1) staffed by community aides. Most stations have radio communication with the Sioux Lookout hospital, and physical communication is by air (Fig 2, 3, 4). Bulk supplies and heavy equipment are freighted to the stations during the winter months by tractor train.

The immediate responsibility for health care in the entire zone rests with the federal medical zone director who lives in Sioux Lookout. The project is run by a local committee which works together with a Toronto committee under the chairmanship of Doctor Bain. The Toronto group's function is to provide resident and consultant medical staff. The greatest needs so far are in the fields of ophthalmology, dentistry and paediatrics.

Fig 4 Infant passenger being airlifted home. The child is bundled in a "tikanagan," a wooden frame for carrying the infant with an extension about the head for protection.

Fig 5 Children pose in the first permanent dental clinic set up in the school at Trout Lake. This equipment was previously in the clinic at the base hospital in Sioux Lookout.

Fig 6 Screening prospective dental patients.

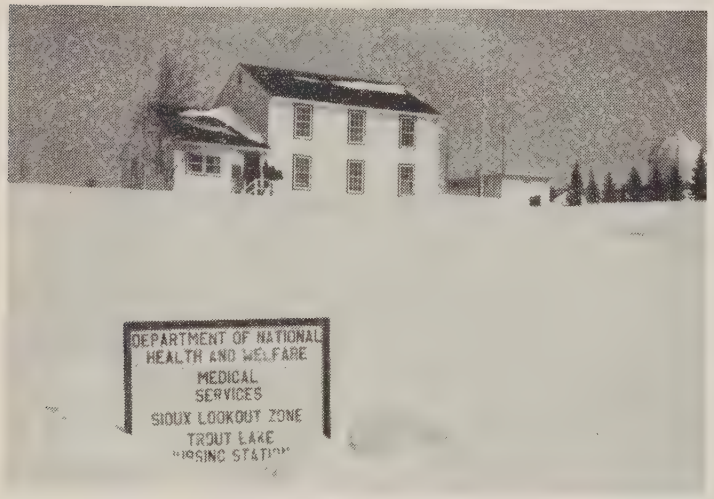



Fig 7 Beside this nursing station a modern four bunk trailer houses visiting staff. A part-time maid prepares the meals and takes care of the living quarters.

## Delivery of health care

The first recruits to the new health plan were two full-time medical general practitioners, followed shortly by a full-time dentist. They are assisted by residents and interns from most of the health disciplines who spend a few weeks at a time in the area.

Consultants periodically visit the area and together with specialty residents arrange lectures and seminars for visiting medical students. The latter are beginning to include a period of time at Sioux Lookout in their undergraduate program, and perhaps in the future dental students may have the same opportunity.

The Hospital for Sick Children's School of Nursing sends senior student nurses in groups of four to Sioux Lookout as part of their training program. A volunteer system is planned for short-term relief nurses from Toronto to work both in the base hospital and in the nursing stations. In addition, nurse-practitioners are being trained to work in the field. This concept may eventually involve the training of Indians to cope with some of their urgent dental needs as rampant dental disease is still a major problem in those remote regions and affects almost 100 per cent of the Indian population.

## The dental program

Following my preliminary investigatory visits to the zone, I recommended Doctor Robert McGinn to be the first full-time resident dentist. His major contribution was building a sound, functional, two chair dental clinic in the base hospital.

During the first year we set up a permanent clinic in the health room at the school in Trout Lake using the original equipment transferred from the base hospital (Fig 5). Trout Lake is the centre of one of the largest and most northerly Indian areas in the zone, with a total population of over 1,000.

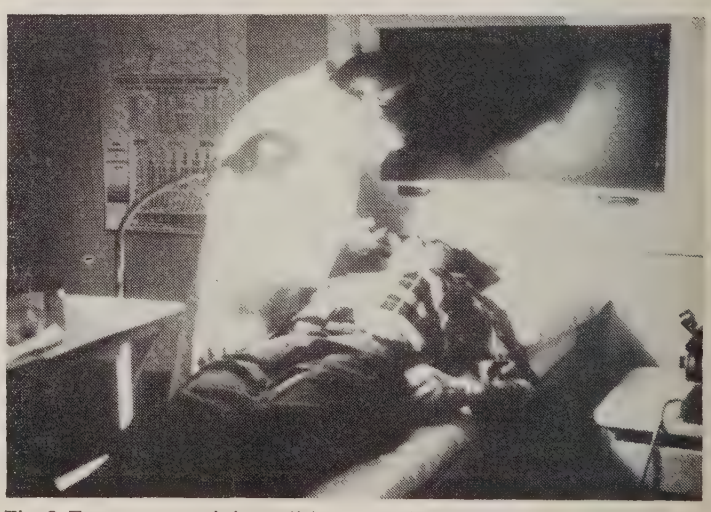


Fig 8 Emergency night call in a nursing station.

Approximately 70 per cent of the dental care is given to children who are screened in the school (Fig 6) before receiving dental treatment. Figure 7 shows the new trailer accommodation for visiting staff alongside the nursing station.

### Aims of the program

We try to provide high quality basic dental care in the nursing stations and outposts (Fig 8). This aspect of the program receives top priority. It embraces preventive, restorative and prosthetic dentistry. We also treat special cases (i.e. extensive surgery) in the Sioux Lookout Indian Hospital and examine and treat all inpatients. And we render emergency service for Indians coming to the hospital.

### Portable dental equipment

We developed complete, self-contained field units that were rugged, compact and designed to permit comprehensive dentistry. The weight was kept to a minimum as air transportation is expensive. To ensure immediate portability and because of the frequent change in personnel it is essential for the field units to be standardized and interchangeable.

Heavy equipment such as dental chairs (Fig 9) was transported by tractor train during the winter to each nursing station. These chairs are frequently used by other visiting medical personnel. Portable army chairs are available in the nursing stations for work in the satellite communities.

Each field unit is contained in five sturdy boxes that can be easily packed in a single engine aircraft (Fig 10). The various boxes accommodate a Midwest Customair III unit; an instrument cabinet; consumable and other supplies; an autoclave, operating light, amalgamator and a "garden" sprayer which delivers the waterspray to the handpieces; and a portable compressor weighing approximately 90lb and equipped with 50 feet of plastic tubing.

Each unit box carries the appropriate air handpieces, waterspray, power suction, and a water and air filter (Fig 11). One of the portable Midwest units is used in the base hospital (Fig 12) when the resident dentist is working there, or as a field unit when he is working away from the hospital.

The instrument cabinet is similar to one used in the military service and contains amalgam and plastic instruments (usually three of each), periodontal and endodontic instruments, a rubber dam kit and burs (Fig 13).

The supplies box contains sufficient operative, surgical and prosthetic material to maintain a dentist in the field for approximately one month. The surgical compartment can be removed from this box should a dentist be required to fly to a small satellite area and perform surgical procedures only. It contains appropriate surgical instruments, usually in duplicate, as well as anaesthetics, sponges, sutures and emergency drugs.

Additional non-perishable supplies such as cotton rolls, sponges and needles are kept in the nursing stations. Antibiotics are supplied upon request and some local anaesthetic is stocked in the summer to avoid freezing during winter transportation.

### Professional staff

The full-time resident dentist carries out the major portion of his work in the communities and co-ordinates the work of the interns and consultants. The program will support two full-time field dentists provided they work primarily away from the base hospital. A new resident dentist, Doctor William Bellingham, started his duties last June and works mainly in the various communities. Fortunately his wife, formerly Miss Patricia Matulak, is also a dentist and will work either with Doctor Bellingham in the field or at the base hospital in her husband's absence.

The main source of dental interns is the Hospital for Sick Children whose interns each spend six weeks in the zone. The Toronto General and Western Hospitals also supply interns who each contribute four weeks. This supply of interns is almost equivalent to another full-time dentist.

Staff dentists from the Toronto teaching hospitals or the Toronto Faculty of Dentistry periodically visit the zone for a minimum of two weeks to work in the communities.

### Assistance

At present there is one Indian dental assistant who spends most of his time in the communities and is responsible for helping visiting dentists and keeping the field units in good order.

In addition, someone in each community, usually a high school student, is selected to act as interpreter. Interpreting is best arranged locally, since Indians in this area are usually either Cree or Ojibway and dialects may vary within these groups. These local Indian assistants have proved to be invaluable. We are investigating the possibility of giving them some organized training so as to establish a corps to provide elementary dental education for their people. These assistants would also be trained to take routine dental radiographs on a portable x-ray machine prior to the visit of the field dentist. This would improve the standard of work and allow the dentist to provide the maximum care for the community.

### Fluoride supplements

Water was analysed in many of the communities in order to determine the amount of natural fluoride present. In most places it was negligible. The highest recording was 0.05ppm, and this occurred in only one community. Plans are under way for the controlled administration of fluoride in tablet form together with vitamins at the nursing stations.

### Prosthetic treatment

Prosthetic care is being expanded. We recommend that an Indian be trained as a dental technician to work in the Sioux Lookout Indian Hospital. Impressions and interocclusal registrations now have to be forwarded to Winnipeg or Thunder Bay for further processing. Invariably the dentist who fits a denture is not the one who took the impressions or recorded the interocclusal relation. However, this lack of continuity is not a major problem, and with the cooperation of the resident dentist and the addition of a dental technician to the hospital, prosthetic work could be very successful.

The patients pay for the laboratory charges.

### Treatment priorities

Following emergency work, children receive top priority. The senior grades are treated first, because

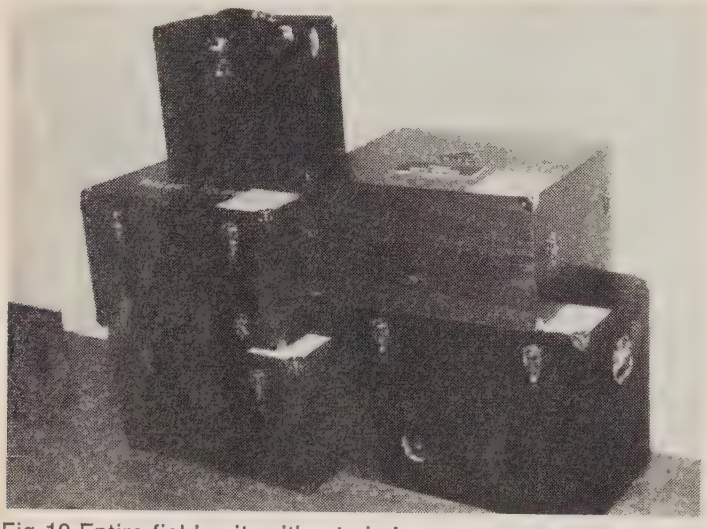
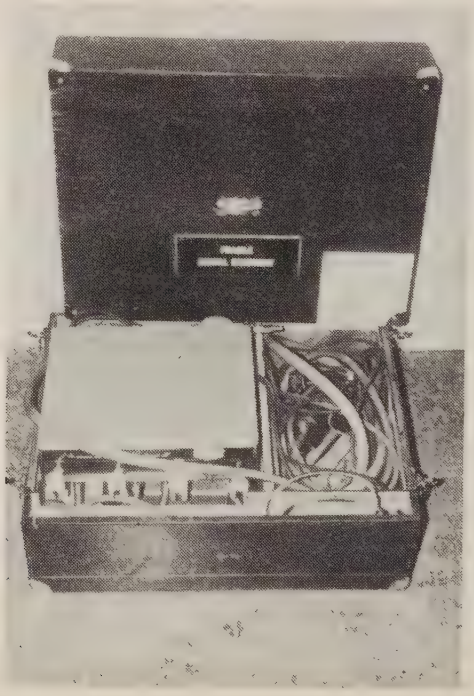


Fig 10 Entire field unit, without chair, ready for transporting. This kit is colour coded in white and each box is marked with a white flier. The instrument cabinet is the smallest box on top and the compressor is in the largest box on the floor.

Fig 9 Portable clinic set up in the basement of the Round Lake nursing station. Chair and light remain at the station.

Fig 11 Unit box, containing Midwest Customair III unit and power suction, packed and ready for transporting.



they are often prospective high school students who may not receive dental care after they leave home to attend high school.

Emphasis is also laid on dental education. Interest is stimulated through a self application fluoride brushing program which is conducted every six months in cooperation with the zone teachers.

## Conclusion

Dental disease has always been a major health problem for Canadian Indians, but the delivery of dental health care is now being accomplished for Indian residents in one remote area of Ontario. The medical and dental professions have joined forces in this project to overcome a Canadian problem which is part of our heritage.

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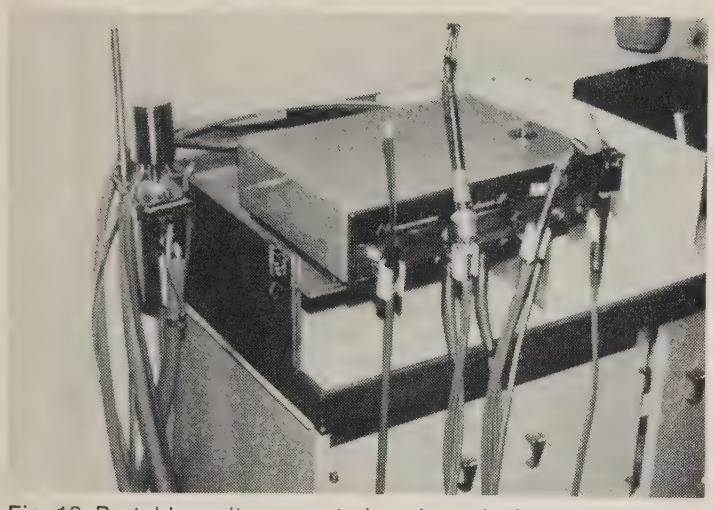

Fig 12 Portable unit connected and ready for operating.

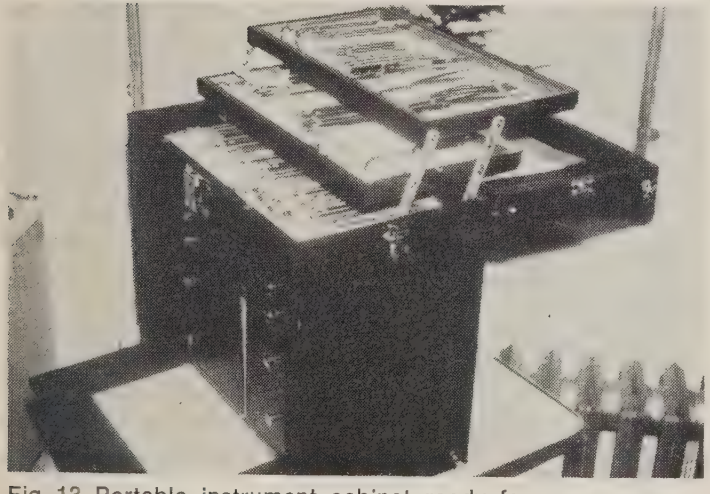

Fig 13 Portable instrument cabinet ready for use.

# Caries prevention through sealing of pits and fissures

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**London, Ont**

*In recent years there has been growing interest in the potential of adhesive resins in preventive dentistry. While many reports of laboratory and clinical trials using adhesive resins to prevent pit and fissure caries have been published, this article describes the fundamental problems and research associated with the laboratory and clinical development of adhesive resin sealants. The factors influencing the use of resin sealants and the clinical protocol are explained, since some sealants are already available commercially to the profession.*

*Il y a eu ces dernières années un intérêt croissant dans les possibilités des résines adhésives en dentisterie préventive. Quoique plusieurs rapports sur des essais en clinique et en laboratoire de l'utilisation des résines adhésives pour prévenir la carie dans les puits et les fissures ont déjà été publiés, cet article traite des problèmes fondamentaux et de la recherche faite en liaison avec le développement en clinique et en laboratoire de substances adhésives. On expliquera ici les facteurs qui motivent l'utilisation des résines ainsi que le protocole clinique puisque certaines de ces substances sont déjà sur le marché et disponibles pour les membres de la profession.*

Dental caries exists in epidemic proportions and consequently presents the dental profession with a monumental task. It is a sobering thought that the federal health minister indicated that only one-third of our Canadian population receives any form of dental care. This results in socio-economic problems reflected by the loss of man hours to industry, commerce and schooling and directly attributable to poor dental health. In addition, from the patients' viewpoint, there exists the discomfort and the high cost of dental treatment.

For too long dentistry has concerned itself primarily with the prosthetic restoration of tissues destroyed by caries. It has accepted as a necessary evil the presence of micro-organisms in the oral cavity, some of which clearly cause oral disease. However, with the general acceptance that caries is an infectious process resulting from the mutual interaction of three major criteria[1] of which diet, microflora and host factors are fundamental, one can formulate a prevention plan. It would seem logical to discover the identity of the micro-organisms involved and then to devise an anti-microbial approach which might include chemobiotics and vaccines. This is at present being investigated by many researchers. However, since three factors are probably responsible for caries, an alternative to an anti-microbial approach may be followed in the case of the pits and fissures which themselves constitute a predisposing host factor. The concept of sealing this site, thus eliminating a possible microbial stagnation zone from which caries develops, offers a new dimension in caries prevention.

While fluoride is effective in reducing caries incidence, a review of the literature shows that proximal surfaces are the prime beneficiaries while pits and fissures benefit least. Paynter and Grainger[2] indicated that the very presence of pits and fissures may be the most important factor in determining the presence of caries at these sites. From our own clinical experience we are very conscious of the high incidence of dental caries in young persons during the early post-eruptive years, and our greatest efforts in the prevention of occlusal decay are directed toward young people. By sealing pits and fissures shortly after tooth eruption, dental caries can be prevented. Adhesive sealants offer an exciting challenge for this purpose.

## Adhesives and adhesion

An adhesive is simply a substance that holds materials together by surface attachment or bonds with a surface by adhesion. Such substances may be of natural or synthetic origin, animal glues and epoxy resins being the most familiar. Adhesion is a complex phenomenon which can only be explained fully by complex mathematics and thermodynamic principles far beyond the scope of this paper. It may be briefly

defined as attraction between molecules at an interface. Attraction implies force, and there are two basic types in adhesion. The first is physical, involving van der Waals forces, and the second is chemical, in which covalent, ionic and metallic bonds play a significant role. The chemical bonds are stronger than the physical ones, yet both exist for only short distances of separation (few Angstrom units) of the surfaces involved; ideally surfaces should be in absolute contact at the molecular level.

The key to lasting adhesion lies in maintaining molecular closeness. The surfaces of biological tissues are neither flat nor smooth. Therefore, for an adhesive to bond with an irregular surface it must give molecular closeness to that surface. This property is referred to as wetting. Considering the factors which influence wetting, including the physical structure and physico-chemical properties of the adherent surface, then theoretically an adhesive can be formulated for that surface. Some adhesive resins are already available for sealing occlusal surfaces against caries. Further information on adhesion to biological tissues is given by Manly.[3]

## Concepts of sealing

The concept of sealing or eliminating pits and fissures to prevent their decay is not new. The method devised by Hyatt[4] is well documented. His technique involved the preparation of shallow Class 1 cavities in teeth shortly after eruption and filling them with amalgam. Hyatt's prophylactic odontotomy fell into disuse not only because the method was traumatic for the young patient but also because it was difficult to differentiate between immune and susceptible fissures. Chemical agents such as silver nitrate[5] and zinc chloride and potassium ferrocyanide[6] have also been evaluated for their potential as sealants. These methods met with little success as did the use of copper cements.[7]

In the last decade, following some pioneer work by Buonocore,[8] considerable interest has been aroused in adhesive resins for sealing pits and fissures. There is at present no known material capable of forming a permanent bond with untreated enamel surfaces under oral conditions. Nonetheless, several researchers[8-13] have shown that satisfactory bonding can be achieved by conditioning or "cleaning" the enamel prior to adhesive placement. Clinical and in vitro studies by these workers have shown that several materials bond with conditioned enamel surfaces, for example, methyl-2-cyanoacrylate and silicious filler (Kadon, Bonfil, Sevriton), epoxy resin derivatives and materials based on polyurethane. Some success has been reported[14,15] without conditioning, using an alkyl cyanoacrylate and methyl methacrylate.

Some adhesive resin sealants have recently been introduced commercially to the profession, such as Nuva-Seal (L. D. Caulk Co) and Epoxylite Fissure Sealant (Epoxylite Corporation). It has been my privilege to contribute several years of research to one of these products. Before discussing the material and its clinical application let us consider some of the factors which govern the use of adhesive resin sealants in the mouth.

## Reasons for use of adhesive resin sealants

Occlusal surfaces are more susceptible to caries than other surfaces. The pit and fissure site consists basically of a blind, narrow crevice in which food debris and micro-organisms accumulate. The constriction of the fissure provides a haven at its base for plaque formation and the resultant spread of caries. Little cleansing effect is achieved by toothbrushing, detergent action of saliva or by the topical application of fluoride salts which must have access to the site.

The presence of micro-organisms, particularly the acidogenic types, and the availability of substrate are fundamental to the carious process. The substrate comes from two sources, the fermentable carbohydrates ingested by the host and the tooth tissue. The fermentable carbohydrates play a significant role in the energy requirements of the micro-organisms. A possible mechanism for caries is that since phosphate is an essential ion in the metabolic cycles of micro-organisms, the acid produced by fermentation releases phosphate from the tooth. A cyclic phenomenon is therefore established.

While micro-aerophilic or facultative organisms may temporarily survive sealed conditions, they do require substrate for subsistence. Sealing pits and fissures, therefore, prevents not only the accumulation of micro-organisms but also the availability of fermentable substrates. Since only small ions are transported via the dental tissues from the pulp they play an insignificant role in supporting the organisms.

## Biological factors influencing use of adhesive sealants

Adhesives have been used industrially for decades, but with recent progress in synthetic chemistry and adhesive technology a tremendous variety of products with many uses now exists. The factors influencing the use of adhesives as sealants under oral conditions are opposed to the major factors responsible for industrial success. They are as follows:

*Presence of water*—The presence of water significantly influences bonding; so industry has made full use of bonding dry assemblies. Under oral conditions one cannot completely escape the presence of water.

*Setting mechanisms*—Industry has at its disposal a wide range of setting mechanisms. It is not necessarily limited by temperature, pressure or the toxic nature of the agents. Biologically, one is limited to non-toxic liquids which cure at body temperature and atmospheric pressure.

*Conditioning agents*—Industrial assemblies are frequently conditioned to promote bonding. While conditioning agents may be used in the mouth, the spectrum of treatments is limited.

It is obvious that, from a biological point of view, one is limited to a choice of materials which will in

no way threaten the mouth or the systemic environment as a whole. Our first requirement therefore is that dental adhesive sealants be biostable and capable of polymerization by non-toxic means. While this is possible, three important biological factors further influence the use of sealants.

*Physiological factor*—While enamel may be considered non-vital in a strict biological sense it cannot be excluded from the dynamics of fluid flow between the oral cavity and the pulp. Atkinson[16] cited two important roles for this fluid gradient: a defensive role and that of providing lubrication for the enamel rods. Poole et al[17] have stressed the importance of fluid flow in enamel as a shock absorber mechanism. Under stress, the components of enamel move, albeit microscopically, displacing fluid in the process. The forces so generated are believed to be dissipated by the enamel fluid. Any interference with the fluid in enamel and especially the gradient involved in its transport would probably prove detrimental. The ease with which pulpless teeth crack is a clinical example of this. If, therefore, complete coating of the tooth crowns is contemplated, it should be done cautiously. Simple sealing of the pit and fissure site does not endanger the fluid flow through the dental tissues.

*Anatomical factor*—The placement of any prosthetic device within the mouth must comply with occlusal harmony. Pit and fissure sealants which are applied to existing natural crown contours could, in bulk, produce occlusal disharmony. A fundamental requirement is that the sealant exist in vivo as a thin film or veneer of adhesive resin. It should be applied in this manner rather than by grinding and polishing a bulk placement. Thin resin films pose problems because they are notoriously difficult to cure. The advantage of some of the new fissure sealants is that they can be polymerized in situ as a thin veneer.

*Micro-anatomical factors*—These factors profoundly influence bonding to enamel for they include the micro-anatomy of the pit and fissure site, especially the content, and the structural nature of the enamel surface. Buonocore[8] reported improved bonding between acrylic resin and enamel surfaces conditioned with phosphoric acid. He attributed the improvement to several factors including increased surface area and the creation of a reactive surface following the removal of fully reacted material. The latter is significant since the enamel surface in vivo is a relatively low energy surface. It is invariably covered by either a primary cuticle (end product of amelogenesis) or a secondary cuticle or pellicle of adsorbed salivary proteins. Adhesives may bond with the proteinaceous layer but the bond between cuticle and enamel is slight and gives an unstable attachment for the adhesive sealant.

It is imperative that the enamel surface be cleaned of cuticular deposits. The inclined planes of the cusps present no problems, unlike the pits and fissures themselves. The latter are essentially anatomical bottlenecks which trap debris and micro-organisms. A considerable variety of micro-organisms and debris exist below the fissural constriction,[18] and it appears that conditioning for adhesion does not affect the site. The inclined planes of the cusps probably play a major role in the bonding of adhesive resins to occlusal surfaces. Resin may frequently penetrate deep into the pits and fissures but its reaction with enamel in these sites may be limited by the presence of debris and micro-organisms.

Conditioning enamel surfaces with acidic conditioning agents raises concern primarily because such treatments are associated with predisposing the enamel surface to carious attack. There is no justification for this belief and many years of clinical trials using acid conditioning agents have shown no predisposition of the teeth to caries following their use. It was at first not certain which agent had the best clinical potential to promote bonding. Gwinnett[19] evaluated several agents of which 50 per cent phosphoric and 50 per cent citric acids appeared to be the most clinically acceptable. These agents are used with Nuva-Seal and Epoxylite Fissure Sealant respectively. Following one minute applications, they "clean" the enamel surface, simultaneously creating or opening up pores in the enamel.[20] The resin flows into these pores in its monomeric state to polymerize.[21] Some adhesive sealants penetrate in excess of 25 microns. This penetration has two distinct advantages: (a) it fills the pores created by the acid conditioning and hence is protective, and (b) it provides a highly significant means of resin bonding. In the event that the bulk of the sealant is lost or worn there still remains the protection provided by the sealant's penetration into the tissue. This has been shown through in vitro experiments.[21]

## Clinical trials

Several clinical trials have been conducted to evaluate the potential of certain sealants to reduce the incidence of dental caries. These studies have demonstrated widely varying degrees of success. Cueto,[10] Ripa et al[11] and Ripa and Cole[22] using methyl-2-cyanoacrylate and silicious filler reported very significant reductions in the incidence of pit and fissure decay. On the other hand, Roydhouse[23] using a methyl methacrylate sealant and Parkhouse and Winter[24] using a composition similar to Cueto[10] did not achieve very encouraging results. The sealants used in these trials have now been superseded by much improved materials such as Nuva-Seal and Epoxylite Fissure Sealant, of which the former has shown considerable clinical potential.[12, 25] A reduction in decay of the pits and fissures of children so treated has been in excess of 90 per cent in permanent teeth. In the untreated controls an incidence in excess of 60 per cent was noted.[25] Understandably such a procedure appeals to the young patient.

## Clinical protocol

The clinical protocol for adhesive resin placement is surprisingly simple. As a clinical procedure it falls

conveniently into the scheme of preventive treatment already sanctioned for administration by dental hygienists. Individual or quadrants of posterior teeth may be sealed at a time.

Buonocore[12] has described the clinical use of Nuva-Seal. The teeth are cleaned prophylactically using fine pumice. Prior to conditioning, the teeth are isolated with cotton rolls to maintain dry conditions for maximum cleaning benefit. After a one minute treatment of the site with a solution containing 50 per cent phosphoric acid and 7 per cent by weight of dissolved zinc oxide as an attenuator, the surface is washed and dried. Dry conditions are then restored for resin placement.

The resin comprises a reaction product of bisphenol A and glycidyl methacrylate and methyl methacrylate. Just prior to use 2 per cent benzoin methyl ether is added to form an ultraviolet light sensitive composition. At this time the resin has an almost infinite working time which greatly facilitates the penetration of the thin fluid resin into the enamel pores.

The resin is polymerized by exposure in situ to ultraviolet light from a small hand lamp. The light energy initiates polymerization of the resin. An ultraviolet wavelength is used that is free from hazard to patient and operator. A small drop of resin is placed onto the occlusal surface and worked into the fissures using a smooth brushing action. It is then polymerized in a thin clear veneer of resin.

If topical fluorides and sealants are to be applied at the same sitting, the fluoride treatment should be done after resin placement. This is important because if topical fluorides are applied after conditioning and before resin application, reaction products from the fluoridation interfere with resin bonding.[26]

## Future implications

In a preface to Goose and Hartle's *Principles of Preventive Dentistry* Hardwick points out that many dentists react with uncritical optimism to preventive measures, while others show little faith in their value. These attitudes still prevail. Prevention of dental disease must surely be our ultimate goal despite the present overwhelming task of treating mouths ravaged by oral disease. The task is aggravated by a shortage of manpower, yet the problem will not be solved by increasing the number of dentists. This might imply that the aetiological factors surrounding caries are insurmountable. They are not. Our dental arsenal has numerous weapons to combat dental caries and periodontal disease and many are used by patients through the education and guidance of their dentists.

It is true that some may see resin sealants as a novel idea with little appreciable benefit. But if the experience of past clinical trials is reinforced by further favourable results the public will surely benefit.

It is interesting to speculate about the impact of sealants and other future caries-preventive measures. Obviously there is now a backlog of treatment needs, but this could change in a generation or so. Assuming that the profession and the public accept large scale preventive measures, then what will be the future role of practitioners who devote themselves exclusively to restorative and operative procedures?

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# Types rares de kystes paradentaires: La localisation inter- et latéro-radiculaire

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*L'auteur présente l'étude de trois cas de kystes paradentaires qui, même s'ils surviennent rarement, devraient être compris et reconnus par le praticien.*

*This article describes the microscopic appearance and causes of two comparatively rare lesions: the interradicular cyst in multirooted teeth and the lateral periodontal cyst in teeth with a single root. Despite their rarity, these lesions must be recognized and differentiated from other pathological changes.*

Une irritation, une infection suit la voie endo-canalaire depuis la pulpe agressée jusqu'au périodonte. Elle peut emprunter aussi une communication pathologique. Elle produit alors des lésions analogues aux lésions périapicales mais à localisation plus rare. Ce sont soit des lésions latéro-radiculaires, soit des lésions interradiculaires.

Les traités classiques d'endodontie et de pathologie buccale les englobent sous le titre d'infections paradentaires. Parfois, ils offrent une brève description de ces lésions au stade de granulome.[1] Granulome latéro-radiculaire le plus souvent, sur dent à pulpe nécrosée. Secondaire à l'existence d'un canal latéral supplémentaire, il disparaît assez souvent, d'après Mme Chaput, après le traitement du canal principal.[1] Granulome interradiculaire, parfois, que l'on pourrait confondre avec une parodontolyse interradiculaire. Cet article traite des lésions causées par la gangrène. Il faut les séparer des kystes paradentaires sur dents vitales.[2]

On devrait admettre que ces lésions paradentaires sont de nature plus volontiers granulomateuse que kystique.[3] La présence obligatoire de paramètres précis: l'existence d'un épithélium emprisonné, puis irrité et qui prolifère par stimulation, une tendance associée, héréditaire à la formation kystique,[4] rendent la transformation kystique assez alléatoire.

Aussi ces lésions sont-elles souvent passées sous silence ou signalées dans leur localisation strictement latéro-radiculaire.[5-7]

Il faut faire l'inventaire minutieux de la littérature pour trouver quelques descriptions de kystes paradentaires à localisation rare. Tantôt latéro-radiculaires,[8-11] tantôt bien moins souvent interradiculaires,[12, 13] leur rencontre est peu banale. Aussi nous est-il paru possible de présenter quelques cas de kystes paradentaires à localisation rare et d'en discuter leur étiologie.

## Description des cas

Le spécimens appartiennent aux collections du département de biologie dentaire, Faculté de chirurgie dentaire, Université de Montréal.

Ils proviennent de trois dents permanentes dont on ne connaît pas l'histoire.

Elles ont été décalcifiées, préparées suivant la technique habituelle exigée pour la celloïdine, coupées et colorées à l'hémalun-phloxine-safran.

*Cas numéro 1* — Cette molaire inférieure ne possède plus de couronne (Fig 1). La carie l'a totalement détruite et a provoqué une fracture de la zone interradiculaire qui a séparé les racines l'une de l'autre. Dans cette zone de bifurcation, se trouve un kyste interradiculaire. Deux kystes périapicaux sont accrochés à l'une des deux racines.

Figure 2 vient du même cas que la figure précédente. Mais la coupe, ici, est faite plus loin.

La carie pénétrante a provoqué une fracture du plancher pulpaire. Un fragment dentinaire ayant constitué une partie de la zone de bifurcation, s'accroche au kyste interradiculaire.

Une gangrène pulpaire explique la présence des deux kystes apicaux. Sur certaines coupes, ces kystes sont suppurés et abondamment cloisonnés d'épithélium.

*Cas numéro 2*—Il s'agit d'une racine de mono-radiculée: très hypercémentique (Fig 3). Une carie centrale a détruit la couronne et des colonies bactériennes ont infiltré la dentine cervicale. Le canal est encombré d'un matériel de gangrène. A mi-hauteur de la racine

Fig 1 Ce cas nous montre un exemple d'atteinte pluri-kystique. Dans la zone interradiculaire, en regard d'une fracture due à la carie, s'est formé un kyste, à la place de la partie supérieure du septum. Hémalun-phloxine-safran.

Fig 2 Cette coupe nous présente le même cas mais à un niveau différent. Un fragment du plancher fracturé est accroché au kyste interradiculaire dont la paroi paraît ici plus épaisse. Hémalun-phloxine-safran.

est accolé un kyste latéro-radiculaire dont la cavité ne contient qu'un fragment tissulaire arraché probablement pendant les manoeuvres opératoires. A l'apex, adhère aussi, un granulome épithélial.

*Cas numéro 3*—Comme dans notre cas précédent, ce spécimen présente une monoradiculée réduite aussi à l'état de racine (Fig 4). Elle possède deux canaux mal visibles sur cette photographie qui communiquent entre eux. La pulpe est atteinte de pulpite chronique au niveau de l'un des canaux, de gangrène au niveau de l'autre. A la partie supérieure de la racine s'accroche un kyste latéro-radiculaire. Sa paroi est enflammée et infiltrée de petites cellules rondes. On note l'existence à son niveau, d'une fistule gingivale.

## Discussion

La pathogénie de l'infection péridentaire est bien connue. Une carie pénétrante en est, généralement, le point de départ.

L'infection envahit la pulpe, suit le canal jusqu'au delta apical et pénètre le périapex. Il en résulte, en cas de lésion chronique, un granulome qui très souvent s'épithélialise. Plus rarement, il évolue en lésion kystique. (Patterson,[14] par exemple, sur 501 spécimens, compte 84 p.c. de granulomes périapicaux, 14 p.c. de kystes seulement). La présence d'épithélium (débris de Malassez, restes de la gaine de Hertwig) ne serait une condition ni nécessaire, ni suffisante pour sa dégénérescence. Duluc constate ainsi (dans un abstract où il ne donne pas de détails) qu'une minorité de parois kystiques s'avère en effet dépourvue de toute trace d'épithélium.[15]

Granulome, granulome épithélialisé, granulome suppuré avec ou sans abcès chronique, kyste . . . le processus évolutif est identique, quelque soit la localisation de la lésion chronique.

L'anatomie des canaux accessoires peut donner une idée des possibilités infinies de localisation des lésions paradentaires.

Ce peut être un canal artificiel, une fausse route créée au moyen d'instrument rotatif, par exemple.[13]

Ce peut être un canal aberrant.[7] La lésion est alors susceptible de se développer à n'importe quel niveau de la racine parallèlement à l'existence d'un apex sain et vivant,[9] ou bien pour certains auteurs,[6] sur une dent depuis longtemps dépulpée, en face d'un canal accessoire oublié au cours d'un traitement endodontique.

Dans certains cas, un granulome latéro-radiculaire peut s'abcéder, se fistuliser à la bouche et être envahi secondairement suivant la théorie de Grawitz, par l'épithélium buccal.[9] On pourrait envisager une pathogénie identique pour notre spécimen numéro 4, où le foyer kystique communique à la bouche par une fistule.

Dans cette même catégorie de lésions latéro-radiculaires, Pons et ses collaborateurs ont décrit, encore, un kyste latéro-radiculaire sur dent vivante invaginée, d'étiologie donc exceptionnelle.[10] Dans ce cas particulier, la pulpe atteinte se trouve en communication avec la cavité buccale. Une infection a pu emprunter le chemin de l'invagination amélo-dentinaire, créant ainsi un kyste latéro-radiculaire d'étiologie atypique.

Ce peut être un canal accessoire interradiculaire situé au sommet de la bifurcation.[16, 13]

Certains auteurs ont décrit, au niveau des dents pyorrhéiques,[17, 18] de larges canaux qui courent, dans la zone de bifurcation du périodonte à la pulpe, et qui peuvent se réunir, s'élargir avec l'âge. L'infection emprunte ce chemin, de la pulpe au ligament, du ligament à la pulpe.

Le plus souvent, la lésion se limite à une résorption osseuse due à un granulome interradiculaire,[12] et elle peut disparaître complètement après le traitement endodontique. Il s'agit souvent aussi d'un granulome épithélialisé situé dans la zone interradiculaire de dents déciduales, comme dans notre Figure 5. L'épithélium peut provenir, dans ce cas, de celui qui se trouve dans le sac dentaire de la dent permanente sous-jacente.

Constatées par Seltzer au niveau des molaires d'adultes[19] (des granulomes peuvent causer la résorption de la crête alvéolaire interradiculaire), des lésions identiques ont été mises en évidence chez l'enfant et produites expérimentalement chez les animaux.[20] Une inflammation pulpaire de la dent déciduale est suivie, la plupart du temps, d'un changement périodontique. La destruction de l'os interradiculaire permet la formation, illustrée par notre Figure 5 d'une petite masse granulomateuse, enflammée, qui peut s'épithélialiser en 15 à 18 jours.

Seltzer a d'ailleurs confirmé ces observations par une expérimentation chez le chien et le singe.[21] Des pulpes exposées et enflammées ont développé des réactions périodontiques dans 10 à 15 p.c. des cas, en regard de canaux accessoires faisant communiquer plancher pulpaire et ligament. Dans certains cas, l'inflammation est suivie d'une formation de tissu de granulation, épithélialisé secondairement. L'évolution, ensuite, du granulome en kyste nécessite un délai et la réunion, on l'a vu, de circonstances conditionnelles

Fig 3 Un volumineux kyste latéral est accolé à la racine hypercémentique de cette monoradiculée atteinte de gangrène. Hémalun-phloxine-safran.

Fig 4 Ce kyste latéral est identique au précédent, mais la cavité kystique est moins vaste et s'est fistulisée à la bouche. Hémalun-phloxine-safran.

optima. Notre cas de kyste interradiculaire sur dent permanente présente une étiologie de ce type.

Le kyste correspond ici à une fracture du plancher pulpaire et la molaire atteinte a souffert d'une maladie longue (carie centrale, gangrène, infiltration de la dentine radiculaire par des colonies de micro-organismes, racines hypercémentiques prouvent l'atteinte chronique de l'organe dentaire).

Observée à un stade de destruction moins avancée et où l'intégrité du plancher pulpaire aurait été respectée, cette molaire aurait pu révéler, dans la zone de bifurcation correspondant au kyste interradiculaire, la présence d'un canal accessoire histologiquement décelable, ou même la propagation de la carie, par le moyen des tubuli dentinaires du plancher, jusqu'à la zone interradiculaire. Malgré la possibilité d'une triple étiologie (carie, canal accessoire et fracture) le kyste interradiculaire est, en fin de compte une lésion rare, ou tout au moins peu décrite.

## Conclusion

Ces lésions bénignes sont d'une importance pratique assez négligeable. Leur volume est toujours limité même si elles occasionnent une destruction du septum, des micro-résorptions au niveau du cément et de la dentine radiculaire. Elles pourraient suppurer et s'ouvrir en une fistule. Mais la plupart du temps, accompagnant une dent qui échappe à toute thérapeutique et qui est destinée à l'extraction, ces kystes sont énuclés au moment de l'ablation de la dent. Ils échappent ainsi au danger d'évolution en kyste résiduel.

Tableau extrême de la pathologie périapicale chronique, ces lésions devraient être appelées à disparaître avec l'aide de la vulgarisation de l'endodontie et la diffusion plus large des soins bucco-dentaires.

Lésion singulière et atypique, c'est une entité clinique et anatomo-pathologique que l'on devrait connaître et reconnaître.


## Résumé

Trois cas de kystes paradentaires à localisation rare ont été présentés: un kyste interradiculaire, situé dans la zone de bifurcation d'une pluri-radiculée fracturée par une carie centrale, et deux kystes latéro-radiculaires sur mono-radiculées. L'étiologie de cette périodontopathie a été rapidement discutée.



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Fig 5 Un granulome épithélial occupe toute la zone interradiculaire de cette dent déciduale. Hémalun-phloxine-safran.


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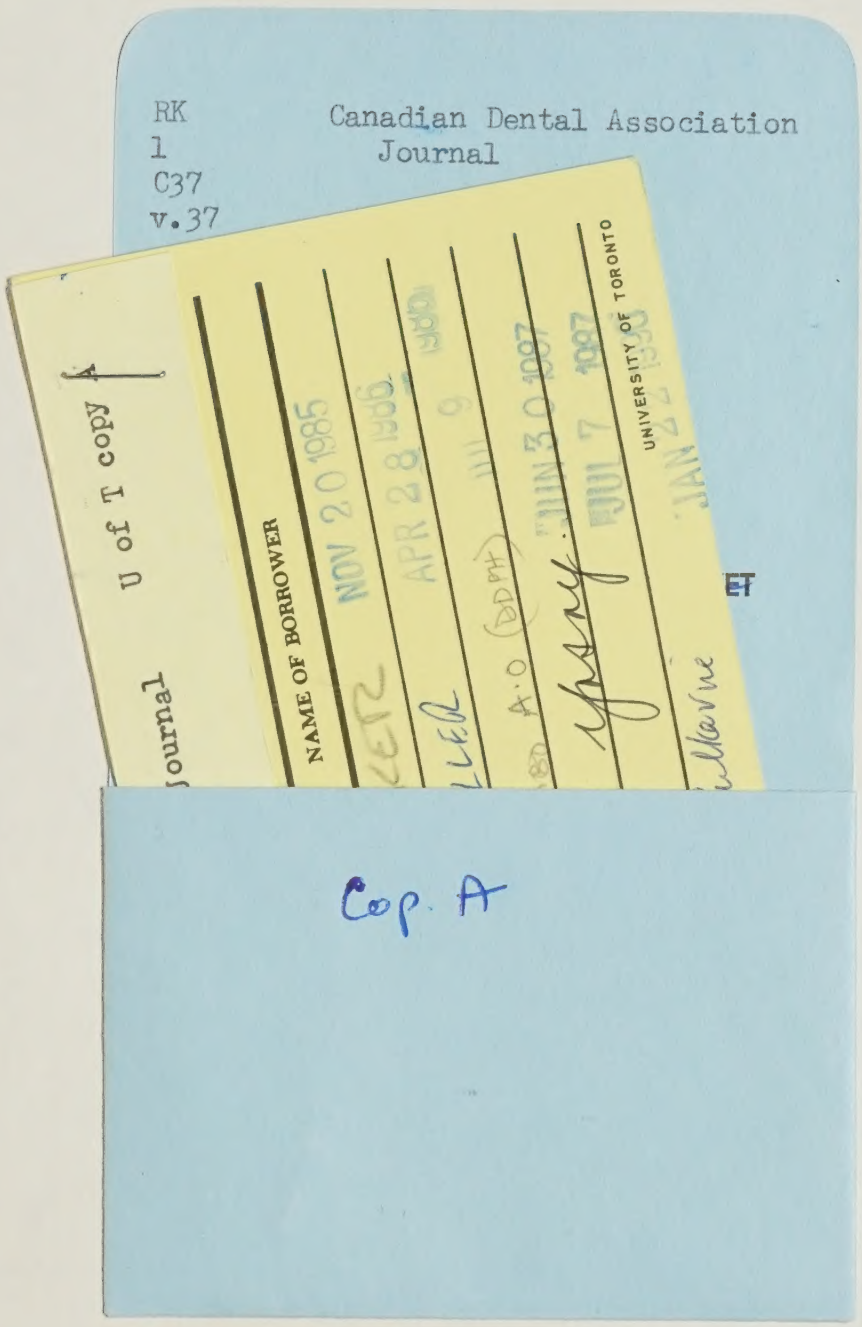
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